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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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In Memoriam

WITHIN less than a week the sad story of Mr. and Mrs. Roscoe Brunner is mercifully over. It came as a shock to all; it has left behind nothing but regret and reverent sympathy. Mr. Brunner's qualities as a man and as a director of large businesses have been fittingly described by his colleagues. He was known everywhere and in every relation as clean, upright, capable, kindly, and modest. To his relatives and colleagues, to the workers whose operations he directed, to the industry at large with which he was associated, his end is a loss deeply to be mourned. Even in the tragic event itself the prurient curiosity of a section of the Press has discovered nothing more than what was human and pitiful; as regards the great concern with which he was so long and honourably associated, the inquisition has failed to justify even a breath of suspicion. The veiled suggestion of internal trouble may be dismissed at once. In no business of the same size and responsibility has the tradition of intimate family friendship and mutual confidence been maintained more consistently. One may be sure that any advice tendered to him in relation to the chairmanship was the advice of friends, directed to his own interests as much as to any others. In this as in other cases, years of perhaps too intense application to work, years of heavy responsibilities unrelieved by periodical relief in holidays, had overstrained brain and nerve, and during the period of temporary breakdown, when nature was at its lowest, came a sudden squall, unhappily at the moment when there was no strength to resist it.

We have used the word "regret," and it is justified. For the kind of illness which overcame Mr. Roscoe Brunner is one to which incessant mental application and heavy moral responsibilities expose all who undertake them. It is, indeed, no uncommon temporary experience. The terms of the coroner's court seem harsh terms to apply to such cases, though the law requires them to be so expressed. For, with patience and reasonably good health, the temporary weakness gradually passes and the sufferer emerges from the shadow as well as ever. This would have been the normal course in Mr. Brunner's case but for the accident of a sudden strain at the wrong moment. It is often remarked that while of late years the art of the surgeon has advanced almost incredibly, there has been no corresponding advance by the physician into the mystery realm of the mind. When brain and nerve give way, as nowadays they so often do, under the excessive strain of modern business, there is no real cure except the primitive remedy of sunshine, air, and rest, and it is one that active natures find it hard to submit to. To live through the period when the mind shies at and dreads the very activities it formerly delighted in, when the sufferer feels it will never function again and that he is out of things for good, is one of the most trying of human experiences and most trying of all to the most sensitive moral temperaments; physical suffering can hardly be compared to it. It has unhappily become a common experience in modern times, yet medical science has obtained very little direct control over the conditions that produce it, and Nature has usually to be left to effect the cure in her own way and in her own time. It will always be a matter for deep regret in regard to Mr. Roscoe Brunner—and, indeed, to his wife, too—that at a critical moment an untoward circumstance should have intervened to bring disaster that might otherwise never have occurred.

One other reflection is perhaps permissible. The fanciful picture, so familiar to-day, of the idle capitalist, luxuriating in wealth and pleasure, presents a sharp contrast to the picture of the real leader of industry bravely carrying on for over a quarter of a century under responsibilities unknown to the ordinary workman. For over 28 years Mr. Roscoe Brunner had given his energy and ability on the management of a great national industry, with a constant eye on the interests of shareholders and on the welfare of the workers. It

was a public trust to which undoubtedly he sacrificed his health. It is always a hard experience for such a man to realise that his strength is becoming unequal to the burden; but there is no thought of dishonour in it. It is natural and very human. There is no reason to suppose but that in the ordinary way his powers would have presently returned. It has proved unhappily to be otherwise. For himself, there is nothing left but the memory of his able and upright work, continued over many years, and of the affection and respect of all with whom it brought him into contact. And for his immediate relatives and colleagues there is nothing but respect and sympathy in an experience of no ordinary sorrow. If the loss cannot be repaired, the knowledge that so many share in it may at least mitigate something of its poignancy.

The Oxidation of Coal

THE spontaneous combustion of coal provides a problem which has been the object of investigation for a number of years, but the trouble and loss occasioned by this phenomenon still continues in spite of the precautions nowadays taken to preclude it. It stands to reason that, before means can be introduced to eliminate or minimise the risk of self-heating, some definite knowledge must be obtained of the reactions responsible for the rise in temperature which occurs. As is not unusual in complex problems of the kind, the chemist seems to have been chasing a myth in supposing (as he did for so long, and probably still does in many cases) that the so-called "brasses," or iron pyrites, are at the bottom of the trouble. The storage of coal is a procedure that nearly all large industrial concerns have to contemplate. Research in connection with spontaneous heating is, therefore, of more than casual interest, but frequently the results of the newer work which is going on do not reach so wide a public as they should, or as they deserve. It certainly behoves, for instance, all large consumers of coal to study the technical paper (No. 28) which has just been issued by the Safety in Mines Research Board, and in which are set out the latest conclusions arrived at by Mr. W. Francis and Professor R. V. Wheeler as a result of the continuation of their investigation of those constituents of the coal conglomerate which are likely to be responsible for oxidation.

We are accustomed in these days to the explosion of time-honoured theories, so that one is not altogether unprepared for the assertion that, while on occasions the presence of pyrites may be a contributing or even a determining factor, the principal cause of the spontaneous combustion of coal is the direct action of the oxygen of the air on the coal substance. Earlier investigators were, it will be remembered, almost unanimous in their condemnation of the pyrites, and one has heard in years gone by of the pains sometimes taken to remove the visible pyrites by hand picking. This particular impurity seems now, however, to be partially exonerated. The study of spontaneous combustion has, in fact, resolved itself into an investigation of the character of the reactions which take place between oxygen and the coal substance at low temperatures.

From the technical paper now published it would seem that great advances have been made in the direction of fixing the responsibility on definite constituents, for atmospheric oxidation has been found to increase the proportion of substances extractable from the coal (*i.e.*, the so-called ulmin compounds) by alkaline solutions, or even to produce such substances where apparently none existed before. Mr. Francis and Professor Wheeler emphasise, indeed, that the initial oxidation of coal is confined almost entirely, if not exclusively, to the ulmin or humic compounds, while an explanation is given of the fact that the bright portions of the seam are the most liable to give rise to trouble, the fusain portion sometimes assisting. To summarise a complex deduction in a few words, it may be said that the readiness with which a given coal will oxidise and self-heat depends, chemically, upon (1) the proportion of ulmin compounds it contains, and (2) on the degree of reactivity of these compounds. Moreover, both these properties can, as a result of the development of modern research, be given quantitative expression. The industrial coal consumer must not, however, assume that his problem is solved. Even though the erring constituents may have been brought to book, it is a difficult matter to see how oxidation can be prevented by any simple means when dealing with storage in bulk.

High Pressure Plant Research

SOME of our readers will recollect our remarks in these columns about a year ago in connection with the necessity of encouraging research in the problems that have arisen owing to the rapid development of high pressure processes. There is no doubt that with the majority of processes now operated at 100 atmospheres or more, perfection from a purely chemical standpoint has been achieved without any undue difficulty, and it has been upon engineering design that success has rather depended. In this direction there is no doubt, of course, that practical experience, leading as it does to one modification after another, is the only reliable guide, and with processes such as the synthesis of ammonia sufficient experience should now have been gained in connection with such things as the design of high pressure joints and the behaviour of containers under conditions of high pressure and temperature, for certain standardised data to be drawn up. In spite of the interest taken in these modern processes, papers dealing with the details of plant construction seldom seem to figure in the proceedings of the technical associations over here, and it can, perhaps, scarcely be expected that information which has been obtained only after experimenting at considerable cost should be pooled for the general good, desirable as this would be.

In America things are somewhat different owing to the existence of finely equipped official research institutions which consistently tackle current problems and issue detailed reports of the conclusions arrived at. Here, again, the question of high temperatures and pressures has not been neglected, and the plant engineer will do well to study a paper which Mr. J. G. Thompson, of the Fixed Nitrogen Research Laboratory, read before the meeting last month of the American Electrochemical Society. Not only is there a discussion here of the numerous difficulties which were encountered in attempting to produce gas-tight

systems even at the lower temperatures, but specifications are given of the materials recommended, while the causes of failures are stated. It is emphasised that the first requirement of a steel to resist the action of hydrogen and nitrogen in ammonia synthesis is a chromium content of not less than 2 per cent., the carbon content being not more than about one-seventh of the quantity of chromium present. Information of an important character is also given as to the effect of adding other alloying elements which may improve the quality of the steel but probably have little influence in assisting to resist corrosion. Altogether the paper in question forms a very valuable addition to the knowledge of a comparatively new branch of chemical engineering.

Oil from Carbonisation Processes

In his paper before the Institution of Petroleum Technologists on Tuesday, Dr. Mollwo Perkin did not attempt anything very new on the subject of oil fuel and other fuels from carbonisation processes, but his tone was notably optimistic. Although he admits that there has been much exaggeration in this matter, that unworkable processes have been "boosted," and that promises have been held out that could never mature, he still believes that the problem will shortly be solved. As the pioneers of the gas industry he thinks it is up to us to solve the problem of low temperature carbonisation and to produce smokeless fuel and oil in the first place, to prevent the pollution of the atmosphere by burning the raw material, and secondly to produce oil for our own requirements. Low temperature carbonisation, he admits, has not so far been a great commercial success, but he sees no reason to doubt that in the near future a very large amount of coal will be carbonised for the production of smokeless fuel and by-products, and he believes that the retort of the future will be vertical, heated externally and also internally by passing a portion of the thoroughly scrubbed gas up through the retort. Expert scientific opinion has of late begun to recognise the possibilities of the low temperature method.

It is a little difficult to judge of the value of the tables accompanying the paper, for the reason that Dr. Perkin's prices are admittedly more or less hypothetical and have only been taken as a basis for calculation. Prices, of course, are a pretty important point when the commercial stage is entered on. He quotes three cases. In the first, 100 tons of Hutton coal carbonised was found to yield 74¼ tons of smokeless fuel, with 593 lb. of ammonium sulphate, 279 gallons of motor spirit, 205 gallons of kerosine, 1,399 gallons of fuel oil and one ton of pitch. This leaves a net profit of 36½ per cent. In the second case, 100 tons of Grassmore coal yielded 75 tons 16 cwt. smokeless fuel, with slightly different yields of sulphate and oils, the estimated net profit here being 37 per cent. In the third case, 100 tons of Kent coal yielded 77 tons of smokeless fuel, with by-products in different proportions again, the estimated net profit in this case being 30 per cent. The results look distinctly attractive, but it should be pointed out that the price of the coal carbonised in each case is placed at £1 per ton, a figure to which there is little immediate prospect of returning.

Books Received

Remington's Practice of Pharmacy. By E. F. Cook and C. H. LaWall. London: J. B. Lippincott Co. Pp. 2,090. 45s.

Chemistry of the Oil Industries. By J. E. Southcombe. London: Constable and Co., Ltd. Pp. 224. 12s. 6d.

Ancient Egyptian Materials. By A. Lucas, F.I.C. London: Edward Arnold and Co. Pp. 242. 7s. 6d.

New Conceptions in Colloidal Chemistry. By Herbert Freundlich. London: Methuen and Co., Ltd. Pp. 148. 6s.

The Calendar

Nov.		
15	Royal Society of Arts: Howard Lectures: "Recent Experiments on the Properties of Steam at High Pressure." Professor Hugh L. Callendar. 8 p.m.	John Street, Adelphi, London, W.C.2.
15-18	Carnegie Institute of Technology: Conference on Bituminous Coal. Speakers include Dr. F. Bergius, Professor F. Fischer, Dr. C. H. Lander, Dr. R. Lessing.	Pittsburgh, Pennsylvania.
16	Royal Photographic Society: Scientific and Technical Group: "A Chemical Aspect of Sulphide Sensitivity." K. C. D. Hickman. "The Sensitivity of Photographic Emulsions—Part II. Hydrion Concentration and the Silver Bromide-Thiocarbamide Complexes." S. O. Rawling.	35, Russell Square, London, W.C.1.
16	Hull Chemical and Engineering Society: "The Refining of Oils for Edible Purposes." T. Andrews. 7.45 p.m.	Grey Street, Park Street, Hull.
16 & 17	Society of Glass Technology: Tenth Anniversary Meeting. 2.30 p.m.	Sheffield.
16-27	National Coal Products, Chemical and Engineering Exhibition.	City Hall, Manchester.
17	Institute of Chemistry (London Section): Annual General Meeting. 8 p.m.	30, Russell Square, London, W.C.
17	Society of Chemical Industry (Nottingham Section): Joint Meeting with the Nottingham Society of Engineers. "Temperature Control in Works Processes with special Reference to Pyrometers." William Woodhouse. 7.30 p.m.	University College Nottingham.
17	Society of Chemical Industry (South Wales Section): "Thermodynamics as an aid to the Chemist." J. A. V. Butler. 7.30 p.m.	Technical College, Swansea.
17	Royal Society of Arts: "Artificial Silk." Thomas Brough (Chief Designer, Courtaulds, Ltd.). 8 p.m.	John Street, Adelphi, London, W.C.2.
18	Birkbeck College: Public Lecture on Atoms and Isotopes. Dr. F. W. Aston. 5.30 p.m.	Bream's Buildings, Fetter Lane, London.
18	Society of Dyers and Colourists (Nottingham Section): "The Action of Formaldehyde on Wool." H. S. Bell. 7 p.m.	University College, Nottingham.
18	Chemical Society: Ordinary Scientific Meeting. 8 p.m.	Burlington House, Piccadilly, London, W.1.
18	The Staffordshire Iron and Steel Institute, The Birmingham Metallurgical Society, and the Birmingham Section of the Institute of Metals: Open Discussion on "Metal Melting." 7 p.m.	Engineers' Club, Waterloo Street, Birmingham.
18	Institute of Chemistry and Society of Chemical Industry (Edinburgh Sections): "Some Chemical Aspects of Geology." J. Adam Watson. 7.30 p.m.	North British Station Hotel, Edinburgh.
18	Society of Dyers and Colourists (West Riding Section): "New Synthetic Glass." Professor E. C. C. Baly.	Bradford, Yorkshire.
19	Society of Dyers and Colourists (Manchester Section): "The Action of Caustic Soda on Cotton Cellulose." W. F. A. Ermen and S. H. Jenkins. 7 p.m.	36, George Street, Manchester.

Inquest on Mr. and Mrs. Roscoe Brunner

A Pathetic Story of Strain and Ill-health

THE inquest on the bodies of Mr. and Mrs. Roscoe Brunner, who were found shot dead at their daughter's residence at Roehampton on Wednesday night, November 3 (as reported in THE CHEMICAL AGE of last week), was held at the Wandsworth Baths on Monday. The inquiry was conducted by Mr. Ingleby Oddie. Sir Travers Humphreys appeared on behalf of the family of the late Mrs. Brunner, and Mr. Harold Murphy represented Sir John Brunner and other members of the Brunner family.

Sir John Brunner's Story

Sir John Brunner, elder brother of Mr. Roscoe Brunner, who was the first witness, stated that Mr. Roscoe Brunner, who was 55 years of age, had recently given up his house, Belmont Hall, Cheshire, and had taken Roehampton Court, but at the moment of the tragedy he was not occupying either. He was a director of public companies. To the best of Sir John's knowledge, Mrs. Brunner was 49 years of age. They were married in 1898.

The witness last saw Mr. Roscoe Brunner on October 25 at a board meeting of Brunner, Mond and Co., held in Cavendish Square. Mr. Roscoe Brunner was chairman of Brunner, Mond and Co. from 1918 until this year, when he vacated the chair and was succeeded by Sir Alfred Mond.

The Coroner: The vacating of the chair would be, I suppose, at the request of the board of directors?—Yes.

And for a good reason, I daresay?—Yes; it was stated at the annual meeting of the company that it was on account of his poor health.

And was there any other reason?—There were serious business troubles.

For which he as chairman, I take it, had to take responsibility?—Yes, he had to take the responsibility.

Do you know of your own knowledge whether the giving up of the chairmanship was rather felt by him?—Yes, it was a serious blow to him.

Sir John said his brother had been connected with the company as director for many years before he was chairman.

The Coroner: Can you tell us when the new board of the new company, which I understand is being formed, was constituted?—The board is not yet constituted, it is only proposed.

Was he suggested as a director of this new amalgamated company or not?—No; his name was not among those which were published.

And do you know that it would have been a very great disappointment to him?—It was a very severe disappointment to him.

At what date did he get this information?—On October 25 at the board meeting I have referred to.

The witness went on to say that Mr. Roscoe Brunner had had an attack of shingles on the head which made it particularly painful, and his health was affected by the fact that for many years he had never taken a holiday.

The Coroner: Can you tell us whether he ever spoke of suicide?—No.

Did he and his wife live on ordinary domestic terms?—They were very affectionate. From time to time she was moody, and, if I may say so, difficult.

Do you know that she had taken an interest in her husband's business?—She had his interests very deeply at heart.

It follows, therefore, she would share his disappointment about not being on the board?—Yes; she felt it very acutely.

Would you describe your brother as being a sensitive man?—No, not sensitive. He was an extremely patient man.

Do you know from what you heard from him what his attitude was about his wife interfering in business affairs?—It very greatly distressed him. He had loyally accepted the decision of his colleagues, but she would not accept it and caused him considerable difficulties, which greatly distressed him.

Supposing your brother had discovered that his wife had been round to various newspaper offices endeavouring to interest them in his not being on the board, can you tell me from the knowledge you had of your brother what the effect would probably have been upon him?—I believe if that had come to his knowledge he would have been exasperated beyond measure. I believe I can go so far as to say that it would have turned his brain.

Do you know of any other trouble which might have supplied an adequate motive for his taking his life?—I know of nothing else.

He was a man of very sound financial position?—Yes. His financial position was quite sound.

Would the loss of the directorship be more serious to him from the point of view of finance or pride?—It was pride only, not finance.

In conclusion Sir John stated that he had received from the police and from the Coroner's officers the greatest kindness and consideration.

Evidence of Doctors and Servants

The evidence of a number of servants was then taken as to events immediately preceding the shooting. Thomas Henry Holdstock, who had been Mr. Roscoe Brunner's chauffeur for thirteen years, said that on the afternoon of November 3 he picked up Mrs. Brunner and drove to the Bath Club, and from there took her to the *Financial News* office, where she remained for the best part of an hour. Later he picked up Mr. Brunner and drove them both to the Green Cottage, which was reached about six o'clock. Mr. and Mrs. Brunner seemed on very friendly terms. Mr. Brunner said that he was going back to town, and ordered the car for eight o'clock, but later the witness had a message to say that the car would be wanted at seven o'clock. He sent in a message at seven o'clock to say he was there, and received the reply to wait. About 8.30 p.m., as Mr. Brunner had not come out, he asked Mrs. Attwell to go to the room where Mr. and Mrs. Brunner were to see if Mr. Brunner was ready, but Mrs. Attwell could get no answer to her knock. Later he sent Mrs. Attwell up again at about ten o'clock, and as there was still no answer he told her to go in the room. She did so, and then called him up. He found Mr. and Mrs. Brunner lying at the foot of the bed, and just as he was going to shake Mr. Brunner he saw blood on the floor. He then sent for the police. He had heard no shot.

Police-constable Whitwell described how he found the bodies lying on the floor at the foot of the bed. Mrs. Brunner was lying on her face fully dressed and with her hat on. She had a bullet wound on the right side of the neck below the ear. Mr. Roscoe Brunner was lying across her body on his left side with his right arm round her waist clasping a revolver in his right hand. He was face downwards with a bullet wound in his right temple. There were various notes lying about the room on the bed and chairs, but nothing bearing on death or suicide, and there were no signs of a struggle.

Harold Dorrington, valet to Mr. Brunner, stated that Mr. Brunner was in the habit of keeping a revolver in a little white medicine cupboard at Belmont Hall. About two months ago he was told to get it repaired, and about four weeks ago it came back and he replaced it in the medicine cupboard.

Dr. Athelstane Nobbs, the divisional police surgeon, stated that death in the case of Mrs. Brunner was due to shock arising from a bullet wound in the throat fired at short range, and Mr. Brunner had died from a wound in the right temple self-inflicted.

Dr. Alexander Stowell, of Northwich, Cheshire, said he had been medical adviser to Mr. and Mrs. Roscoe Brunner for the last fourteen or fifteen years. He never regarded Mr. Brunner as a man of very robust health. In August and September last year the witness attended him for a very severe attack of shingles. Following this attack he suffered from very severe pains which had to be relieved by morphia. The attack of shingles lasted for nearly two months, and when he had recovered his nerves appeared to have suffered a great deal. He had fits of depression and recurrent attacks of shingles. The witness saw him from time to time between 1925 and the date of his death. Mr. Brunner told him that there were times when he could not remember things, names, or faces, and sometimes had to wait to be prompted. He last saw Mr. Brunner on October 27. Mr. Brunner then looked very ill

and worried, and said he was suffering from pains in the head and that he could not sleep.

Evidence was given by Detective-Inspector Eve that Mr. Brunner had had a licence for the revolver since 1904 and a permit for 200 rounds of ammunition. He had discovered that, in addition to calling at the offices of the *Financial News*, Mrs. Brunner had called at the offices of the *Daily Herald* and the *Daily Telegraph* on the day before her death.

Coroner's Summing Up

The Coroner, in summing up, said it seemed plain that Mr. Brunner had first shot his wife and then shot himself. In that case the jury would have to return a verdict as regarded Mrs. Brunner that she died through a gunshot wound inflicted by Mr. Roscoe Brunner. The jury were debarred in that court from expressing their views as to the state of Mr. Brunner's mind when he shot his wife. But when inquiring into a man's death they were entitled to say whether he was, or was not, of sound mind when he killed himself. In coming to a decision they must refer to the evidence which had been given about Mr. Brunner's career. He was a very distinguished business man, and had been associated for many years with the firm of Brunner, Mond and Co., and for a time was chairman of that very important company. During his tenure of the chairman's office there was some financial trouble, not as regards the stability of the firm, of course, but some question of contract, or some trouble which resulted in heavy loss. As chairman of the board of directors he would no doubt be held responsible for that loss, and it would appear that it was on account of that unfortunate business transaction that he was requested to vacate the position of chairman of Brunner, Mond, and Co.

"As you can well understand," the Coroner proceeded, "when that took place he would be very distressed, worried, and unhappy. We know from the evidence of his medical adviser that he was so worried that he could not sleep, and that he was highly nervous, that he suffered from a very well known and painful nervous affection, and was mentally confused and by no means normal. On top of this distressing question of the loss of his position as chairman, which was a matter affecting not his pocket so much as his pride, came the next blow. There is apparently some huge combination of important business interests being formed, including Brunner, Mond and Co., and when these large firms amalgamate positions have to be found on the board for all the directors of the various companies which are amalgamated. When the new board was tentatively formed, or the names put forward, it did not include the name of Mr. Roscoe Brunner. That information came to his ears on October 25. There again you can well understand what a blow that would be to his pride, coupled with the distress he must have suffered from losing the chairmanship. It may well be that you may take the view that that was, when associated with his bad health, worry, and difficulty in sleeping, sufficient to unbalance his mind."

The Coroner referred to what he described as the very significant incident of the revolver, and said it seemed plain that, worried to death, distracted and unable to sleep, Mr. Brunner finally thought of the revolver. He procured the revolver, brought it to London, surely not with any intention of killing his wife, but with the intention possibly of ending his own misery, and at this time was apparently not aware of the fact that his wife was actively intervening in the matter of his not having been placed on the board of the huge new combine.

Coming to the night of the tragedy, the Coroner asked the jury whether they could not properly infer that the conversation in the writing-room at Green Cottage must have been about the worrying absence of Mr. Roscoe Brunner's name from the board of directors of the new company. "In the course of this discussion is not it extremely likely as almost to amount to a certainty, that she then divulged what she had been doing, as she thought, in her husband's interests, in the matter of hawking his grievance about the various newspaper offices? If that were so, does not that explain the whole tragedy? Cannot you see what happened—a man driven to despair and distraction by losing his position finding his wife has been interfering in this way? Cannot you understand how, to a man of his temperament and his position, that that might well have been the last straw which caused his mind to lose its balance entirely? If so, his original intention of killing himself, which may well be inferred from the evidence, seems to have been suddenly transformed, in a moment of intense frenzy, exasperation, and irritation, into an insane impulse also to kill his wife. If that is your view you will have no alternative but to return a verdict of murder in the case of Mrs. Brunner, and of suicide while of unsound mind in the case of Mr. Brunner. He was a frenzied madman for a moment, lost control of himself, and yielded to impulse, killing not only himself but his wife."

The Coroner went on to say there was one thing he would like to say upon another aspect of the case. "It seems to me," he said, "that the time has come when some protest ought to be made about the indecent manner in which certain journalists deal with cases of this kind. Where families, whether very obscure or well known, have had the misfortune to become involved in a tragedy of this kind one would have thought that common decency would have protected them from the kind of ghoulish outrage which has been perpetrated in this case. The crowds of reporters at the scene of the tragedy were so great that they had to be regulated by the police. Newspaper articles of all kinds, from the spicy tit-bit, invariably wrong, to some learned disquisitions upon the whole psychology of the case, have been broadcast. The personalities of the unfortunate Mr. and Mrs. Brunner have been discussed, their tempers, their troubles, their relations, and their psychology. The crime has been described, its motives have been assigned. In fact, a newspaper inquest has been held in this case, as in so many more sensational cases. Witnesses have been interviewed, cross-examination has taken place, the summing-up has been delivered, and the verdict has been recorded, all before the coroner has placed the facts on oath before a jury.

"I venture to say that if one hundredth part of the comment that has been made in the Press in this case had appeared in relation to a civil action in the High Court the editors and sub-editors of the papers making that comment would have been severely punished. Is it too much to ask that the coroner's court should receive similar protection? In the coroner's court we deal with tragedies. The issue before us is always a tragic one, and frequently a very painful one. Comments made before the inquest is held are, in my view, highly improper. I would suggest that the Government should make some provision in the Coroners Bill, now pending before the House of Commons, to regulate the publication of this kind of comment prior to the inquest. They would thereby impose upon editors and sub-editors a duty which one would have thought would not require imposition. One would have thought that an innate sense of decency, restraint, and decorum would have prevented editors and sub-editors from putting these comments into their papers pending a case. It is not the reporters I blame, but those who control the reporters. I hope something may be done to protect the relatives of deceased persons, whose affairs have to be inquired into before the coroner, from the misery they are subjected to at the present day."

The jury returned a verdict that Mr. Brunner murdered his wife and then committed suicide while of unsound mind.

The foreman added that they fully endorsed what had been said by the Coroner in regard to the newspaper articles which had been published.

The bodies were cremated at Woking on Tuesday.

A Trade Mark Action

On Tuesday, in the Chancery Division, Mr. Justice Romer had before him a motion under the Trade Marks Acts, 1905 to 1919, respecting a trade mark. The motion was by way of appeal by Mr. Ernest John Savage, food health specialist, of London, against a decision of the Assistant Controller and Registrar of Trade Marks, refusing his application for registration of the word "Nuvola," in classes 3 and 42. The opponents were the Standard Oil Co., of New Jersey, who were the owners of the registered trade mark, "Nujol." The Registrar refused to register "Nuvola" on the ground of resemblance and that it was calculated to cause confusion. It was stated that "Nujol" was liquid paraffin, whilst "Nuvola" was a tablet or caramel composed of sand dried olives, ground Brazil nuts and figs, and was wholly different in appearance. His lordship reserved judgment.

Moulding and Vulcanising Rubber Articles

Some Aspects of Modern Practice

On Wednesday, at a meeting of the Chemical Engineering Group of the Society of Chemical Industry, at Burlington House, London, Mr. H. Willshaw read a paper on "The Moulding and Vulcanisation of Rubber Articles," of which the following is an abstract.

In dealing with the moulding and vulcanisation of rubber articles, owing to the fact that for all purposes these were the final operations that were applied to rubber articles, Mr. Willshaw considered it advisable to describe briefly the condition that the unvulcanised article bore before presentation for moulding; and, although the description dealt chiefly with tyres, it was hoped that the following examples would give sufficient indication of the moulding and vulcanisation of rubber goods in general. The articles of most importance affecting the rubber industry were pneumatic and solid tyres, tubes and so forth, all of which called for either steam, hydraulic, or air pressure, in conjunction with heavy plant, to effect the requisite final moulding. Vulcanisation and moulding were produced in one operation, applied pressure and heat being necessary.

Most moulded rubber articles were produced from unvulcanised components, which were shaped and assembled by various previous processes to bear a definite volume relation to the mould in which they were finally shaped and vulcanised. The cord type of pneumatic tyre differed from the description of the two previous tyres inasmuch as the rubber tube had to remain inflated during vulcanisation, the pressure applied being the means of producing the equalising reaction of the rubber during its expansion. Generally this pressure was round about 200 lb. per sq. in.

Types of Pressure Vessels

In selecting the most suitable type of pressure vessel for his purpose, the engineer was guided by the type of article which had to be vulcanised and by the time taken to effect such vulcanisation.

Where this period was lengthy the most suitable type of pressure vessel was the autoclave. This was a steam vessel designed generally for a working pressure of 100 lb. per sq. in., although actual pressures usually ranged from 40 to 70 lb. per sq. in., in the interior of which worked a hydraulic ram operated by pressure varying from 1,600 lb. to 2,240 lb. per sq. in. Where the period of vulcanisation was shorter, individual vulcanisers could be more economically employed. These could be of either the horizontal or vertical type. Mr. Willshaw exhibited diagrams of an individual vulcaniser of the horizontal type (as used for vulcanising motor cycle or light car tyres) in which the use of hydraulic pressure was completely eliminated; and of a vulcanising press of the vertical type where hydraulic pressure was utilised.

The number of articles vulcanised in open steam pressure was gradually being reduced in favour of those cured in some forms of mould, as it was realised that a compression of the rubber against the expansion occurring during vulcanisation was necessary to give a vulcanised article of consistent formation. To effect vulcanisation, sulphur (already compounded in the uncured rubber) united with the rubber on reaching a temperature of about 115° C. To effect correct vulcanisation in the case of autoclave vulcanised articles, steam must be admitted to the vessel after the hydraulic pressure was applied. In a modern installation the admission and regulation of steam was controlled by means of air-operated diaphragm valves and thermostats. The effect of heat on the unvulcanised rubber caused it to expand with considerable effect, the expansion being determined to some extent by the rubber content of the compound used.

Pressure Considerations

Before any release of rubber occurred, a compression of everything inside the moulds took place, equal to the total load upon the ram, thereby resulting in a compacting of the rubber against the mould, producing an exact impression of the mould. Unvulcanised rubber contained very small air cells, and was sometimes, to the naked eye, porous, and if vulcanised without pressure became very porous. To obtain complete consolidation, correct pressure was necessary in order to disperse this porosity throughout the entire rubber mass.

In order that the rubber article might bear correctly all the markings of the mould, a proper determination of hydraulic and, where required, air pressure was necessary, to equalise the pressure set up within the moulds due to the rubber itself during vulcanisation. The correctness of the pressure could be inferred from the surplus of rubber that was expelled during the vulcanisation ("spew"), which should be as thin as possible; if the moulds were open the "spew" would be much thicker than was desired, and the shape of the article would be affected.

The admission and regulation of steam was controlled by means of thermostats and air-operated diaphragm valves. In the cases where the vulcanising time was short means had to be adopted to ensure the correct period in the moulds, and this had led to the development by one large company of a large number of timing devices.

Vulcanisation

During the period of vulcanisation of tyres the heat penetrated from outside to inside, so that the temperatures of the inner portions of the tyre lagged behind those of the outer ones to a fairly considerable extent. It was essential that the arrangement of the various component parts be such as to give uniform vulcanisation of the moulded article. Where a large mass of rubber, such as in the case of a solid tyre or rubber block, was to be vulcanised, a slow heating or warming-up period was given, to bring the mass to a general temperature throughout, following which the temperature was raised to effect vulcanisation. The articles cured on these lines had what was called "stepped" vulcanisations to distinguish them from those where the steam pressure immediately rose to a maximum vulcanising pressure, holding there over a definite time.

Many rubber goods, especially such items as pneumatic and solid tyres, required a very lengthy period of vulcanisation, and in view of the heavy cost of this operation through this factor of time and the additional factor of expensive plant, every effort was made to reduce the time for vulcanisation. The substances which had been used to reduce the time for vulcanisation were known as accelerators. Common forms were litharge, magnesium oxide, derivatives of aniline, etc.

Although the foregoing descriptions referred to the moulding and vulcanisation of tyres, practically all rubber articles followed one of the processes described. As regards mould design, it had become the general practice nowadays to make moulds in steel. Steel castings generally were most suitable for moulds of intricate shape, as there was far less waste of material and machining than when steel forgings were used.

The services required for moulding and vulcanising installations were of a very expensive character. The cost of an installation for a battery of 20 autoclaves, as that described, would be to-day around £50,000, exclusive of moulds. In so far as the cost of moulds was concerned, this ranged from £15 to £25 for cycle moulds, and from £30 to £125 according to size for car and truck pneumatic tyre moulds.

Bakelite and Other Moulding Substances

The author referred to other substances that were moulded. The moulding of "bakelite" had much in common with the moulding of rubber goods. The content of the mixed powder bore a definite relationship to the mould cavity. With regard to moulding temperatures and pressures, these approximate very closely to those previously given—*i.e.*, 300° to 350° F. and 1,500 to 2,000 lb. per sq. in. of mould surface. Casoid, erinoid and galalith, which had a common base of casein material, had not as yet reached that stage of development wherein moulding was a definite process of manufacture.

As regards ceramics, there were a variety of ways in which clays were conducted through their moulding processes, such as "throwing," "jollying," "pressing," etc. Pressing was carried out in moulds which were designed similarly to those before described for "bakelite," and, like them, provided with grooves for the flash or spew. The mould halves were mounted in steam-heated platens fixed in suitable fly or hydraulic presses. The pressure required varied according to the nature and volume of the work required, and might reach 5,000 lb. per sq. in. on the ram.

Fuel and Other Oils from Coal Carbonisation

A General Review

In a paper entitled "Oil Fuel and other Fuels from Carbonisation Processes," which was read before the Institution of Petroleum Technologists on Tuesday, and of which the following is an abstract, Dr. F. Mollwo Perkin discussed various aspects of the subject from a somewhat novel point of view, arising out of his own work on the subject.

DR. PERKIN stated that the subject of his paper was one bristling with difficulties. For many years past and particularly of late the technical Press and also the non-technical Press—namely, the newspapers—had been crowded with articles on the carbonisation of coal and other carbonaceous minerals for the production of smokeless fuel, oil, and by-products such as sulphate of ammonia. Unfortunately there had been much exaggeration, and promises had been held out which could never mature. Processes which were unworkable had been boosted, the working expenses had been underrated, and from small experimental plant inferences had been drawn which were quite unwarrantable. It was quite natural for an inventor to believe that his particular process would revolutionise the industry, and to want to rush ahead and put up large commercial units. That was the more understandable when one bore in mind the fact that most of the inventors were not blessed with much capital, and after carrying out a large series of experiments found that without outside financial assistance they could not carry on.

Dr. Perkin's Optimism

That the problem will be solved, and he believed shortly, was certain. At the same time the inherent difficulties must not be minimised. The point which those connected with low temperature carbonisation seemed to overlook was that the object of the gas industry was to produce gas, and that the larger the quantity they could make from one ton of coal the more satisfactory the process. Coke, tar, and sulphate of ammonia were by-products. If they could obtain a good price for these by-products then they were able to sell their gas cheaper, and, owing to large distribution, to make greater profits. He wished to point out to those interested in low temperature carbonisation that they could learn much from the plodding work of those engaged in the gas enterprises, and that they ought to realise that the great gas undertakings were built up step by step.

The greatness and the vast ramifications of the trade of the British Empire were in the main built up by the utilisation of its coal deposits. Great Britain was the first nation to realise the value of coal and to employ it for industrial purposes, and more work on the development of low temperature carbonisation had been carried out here than elsewhere. It was up to them to solve the problem of low temperature carbonisation and to produce smokeless fuel and oil, in the first place to prevent the pollution of the atmosphere by burning the raw material, and secondly to produce oil for their home requirements. Coke or semi-coke, as it was sometimes called, burned readily in the domestic grate, and threw out much more radiant heat than was given out by a coal fire flaming up the chimney and contaminating the atmosphere with soot.

Errors and Exaggerations

There had been much exaggeration in reference to smokeless fuel. The general Press had been hopelessly in the dark, and, in fact, many of them who had been studying the subject for years had made suggestions and advocated the use of raw products which a further study had shown were not feasible. He personally came into that category. At one time, and even now, it was customary to point to the enormous coal dumps outside the mines and to say, "Look at that waste — all the coal in these dumps should be carbonised or otherwise employed as fuel!" After visiting many dumps, and making careful examinations, he was convinced that with a very few exceptions the proposition was not feasible and was absolutely uneconomic.

In carbonising coal for the production of smokeless fuel and oil a good coal must be employed if the process was to be an economic success. If the fuel were high in ash and deficient in volatile matter the oil yield and the yield of gas were low. The matter was of considerable importance because the gas was required for heating the retorts. The retorts must either be heated by solid fuel or by the gas produced in the carbonising process. The important economic question arose, which was the cheaper? The radical difference between gas works procedure and that of low temperature carbonisation was that the first aimed at gas; everything else was a by-product. With low temperature carbonisation smokeless fuel was the main product, everything else a by-product. It followed, therefore, that the smokeless fuel must not be used for heating the retorts. If sufficient gas were not obtained from the low temperature retorts, an outside producer must be employed to give the extra gas necessary. The yield of gas on the low temperature plant was from 5,300 to 6,000 c. ft., and there was only a small residue left, if any, after the retorts had been operated.

The processes which had been engaged for low temperature carbonisation could be classified as follows: (1) Vertical retorts with no mechanical internal machinery; (2) horizontal retorts with mechanical screws or conveyors; and (3) rotary retorts. The Scottish shale oil must be taken as the pioneer of vertical retorts. It was invented by Dr. James Young in 1847 and continually improved until the present-day retorts due to Beilby and Bryson were standardised. One of the main objects was not only to obtain oil from shale, but also a large yield of sulphate of ammonia. In fact the Scottish shale oil industry was only able to compete with mineral oil owing to the sale of ammonia sulphate as a most valuable by-product. Therefore the retorts were specially designed for that purpose.

Characteristics of Various Retorts

The "Bryson" retort was probably the best class of retort for shale, but it was not suitable for low temperature operations when the product required was smokeless fuel. A number of vertical retorts for that purpose (low temperature carbonisation) had been suggested, and in some cases excellent results had been obtained, but it could hardly be said that they had been a commercial success. Splendid fuel had been obtained on the Tozer-Marshall retort; it had not been a commercial success in this country, but he believed it was working successfully in South Africa. Mr. Marshall, in conjunction with Mr. Easton, had now designed a vertical retort in which twin propellers carried the coal down through the retort. The blades of the propellers overlapped segmentally and wiped each other so that a bituminous or sticky coal could not hold itself in the retort. This retort was heated externally by gas burning in chequer work, and internally by hot producer gas. On a small scale results appeared to have been satisfactory.

There was also the Crozier vertical retort, which was externally heated, except that flue pipes conveying waste furnace gases were fixed at intervals through the retort. The retorts of the Low Temperature Carbonisation, Ltd., are also vertical.

There were a number of retorts with mechanical conveyors such as Archimedean screws, which had the drawback that with caking or sticky coals they generally seized up. It was doubtful whether retorts constructed on these lines would ever be a commercial success. Recently there had been a considerable number of rotary retorts patented. They were more or less on the lines of the rotary lime kilns, except, of course, that they are gas-tight. Among these might be mentioned the L. and N. retort, invented by Harold Neilson, and the Fusion retort. These were not heated externally, but carbonisation was carried out by the heat given up by gas from a producer. The gas from the producer came out at a temperature of from 450° C. to 550° C., and was taken directly through the rotating retort. The Maclaurin retort was a cross between a producer and a blast furnace, the heating being internal. The oil produced was a cross between a low and a high temperature tar.

Economic and Financial Considerations

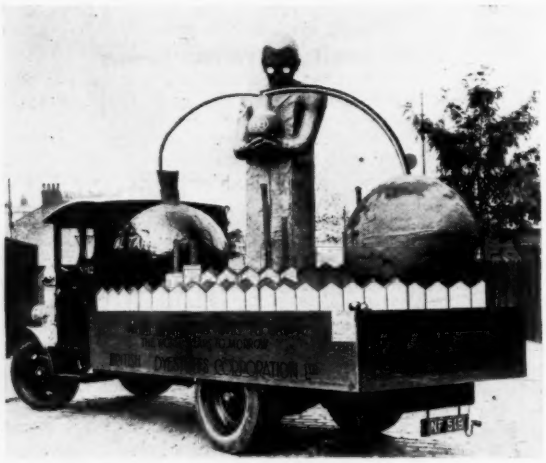
The question of economy was one of the most difficult points. Rapid throughput and output was of great importance. This knowledge had caused inventors to endeavour to get one single retort to do what should be more economically

done by a battery of smaller retorts. The gas industry, after having been working for over one hundred years, had not found it practical or economical to build huge retorts in single units. So far the low temperature carbonisation of coal had not been a commercial success. He believed, however, that in the near future a very large amount of coal would be carbonised for the production of smokeless fuel and by-products. His opinion was that the retort of the future would be vertical, heated externally and also internally by passing a portion of the thoroughly scrubbed gas up through the retort.

Finally, Dr. Perkin gave an estimate of the financial possibilities of low temperature carbonisation. The figures were based on large scale tests of Hutton, Grassmore and Kent coal. Although it was emphasised that the prices were more or less hypothetical, the calculations were extremely interesting, and indicated that after deductions for overhead charges, depreciation, insurance, offices, etc., the profits would vary from about 30 to about 37 per cent. The calculations cannot, from considerations of space, be included here, but should be consulted in Dr. Perkin's paper.

B.D.C. Dyestuffs Tableau

BELOW is shown the tableau exhibited by the British Dyestuffs Corporation in the Pageant of Industry during the recent Manchester Civic Week. The tableau, which was very brightly coloured, symbolised the manufacture of dyestuffs. A stream of coal tar passes from the carboy to the retort in the chemist's hands, and from the retort issue the primary



colours in a stream that spreads over the globe, thus representing the control by the chemist of the manufacture of colour from the beginning to the end of its passage through the B.D.C. works. The tableau rises from a base built to represent a dyestuff works. This exhibit attracted much favourable attention.

Chemical Society Research Fund

A MEETING of the research fund committee of the Chemical Society will be held in December next. Application for grants, to be made on forms which can be obtained from the Assistant Secretary, Chemical Society, Burlington House, Piccadilly, London, W.1, must be received on or before Wednesday, December 1, 1926. All persons who received grants in December, 1925, or in December of any previous year, whose accounts have not been declared closed by the Council, are reminded that reports must be returned by December 1. Attention is drawn to the fact that the income arising from the donation of the Worshipful Company of Goldsmiths is to be more or less especially devoted to the encouragement of research in inorganic and metallurgical chemistry, and that the income from the Perkin Memorial Fund is to be applied to investigations relating to problems connected with the coal-tar and allied industries.

Unit Pulverised Fuel System

Meeting of Fuel Economy Engineers

AT a meeting of the Institution of Fuel Economy Engineers, held at the Royal Society of Arts, in London, on Friday, November 5, Mr. R. Jackson, of Coventry, read a paper on pulverised coal, with particular reference to the "Unit System." Mr. B. S. Donkin took the chair.

Mr. Jackson compared the central or storage system of pulverised coal firing with the unit or self-contained system, which latter, he said, was definitely challenging the position of the former. The unit mill combined the various operations within the compass of one machine, and dispensed with dryer and storage. It was now reliable and dependable, and would operate for long periods without stoppage. It could be used for small and large installations, units now being available with capacities up to five tons of coal per hour, the capital cost being considerably lower than that of the storage system. The unit pulveriser could be easily accommodated on the firing platform of a boiler house or adjacent to any furnace, the total cost of installation being a fraction of that of the storage system. The unit system could be entirely duplicated where necessary, and in many boiler installations it was usual to apply two units, each of which was capable of carrying from 60 to 70 per cent. of the boiler load.

The "Atritor" unit could deal with coals containing up to 15 per cent. of moisture by using hot air drawn from cavities in furnace walls, and drying them during the pulverising process down to about 4 per cent. Separate coal dryers were required in exceptional cases. The "Atritor" unit machine would pulverise with a power expenditure of from 9 to 15 k.w.h. per ton of coal, depending on the nature of the coal, etc. The author emphasised the point that with pulverised fuel systems coals with high ash and low volatile contents could be burnt, including anthracites, coke breezé, and residual cokes from low temperature carbonisation processes, without the production of smoke. The gases emitted from a pulverised coal-fired plant were steam white in colour, even when the plant was running with a CO_2 content in the flue gases of 16 per cent.

Discussion

The Chairman said the two points which appealed to him in connection with the pulverised fuel firing were, first, the possibility of using powdered "Coalite," which he hoped would be made in a more or less powdered form so that the amount of work required to crush it would be reduced to a minimum, and, secondly, the possibility of using higher air temperatures in our furnaces, by the use of powdered fuel, than we could obtain with safety with ordinary grates. At the present time, with the efficiencies obtained with mechanical stoking plant, it was difficult to convince boards of directors that it would pay to change over to pulverised fuel firing.

Mr. A. Spyer said that it was questionable whether the claim that pulverised fuel firing increased the range of fuels that could be burnt could be maintained, and at the moment it must be considered as being on trial. Mr. W. F. Goodrich urged that the question of ash emission be dealt with at once, inasmuch as the advocates of pulverised fuel firing laid emphasis upon its capacity to utilise low-grade fuels. In the development of pulverised fuel firing systems in America extremely good fuels were being used, while recent experience in this country had demonstrated that up-to-date mechanical stokers could deal with such low-grade fuels as would not have been dreamed of four or five years ago.

Mr. Jackson, replying to the question as to the emission of ash from chimneys, said that at his works the ash from pulverised fuel-fired plant was collected and used as a base for a valuable polishing compound.

Chemicals at the Fair

OVER 7,400 sq. ft. is the total area applied for in the chemical section of the British Industries Fair, White City, Shepherds Bush, the number of firms up to date being 34. Among the more recent applicants are:—Sanoper, Ltd.; South Metropolitan Gas Co.; Whiffen and Sons, Ltd.; British Drug Houses, Ltd.; Howards and Sons; United Alkali Co., Ltd.; Albright & Wilson, Ltd.; May and Baker, Ltd.; Thos. Tyrer and Co., Ltd.; Thos. Morson and Son, Ltd.

The New Factories Bill

To the Editor of THE CHEMICAL AGE.

SIR,—Permit me to draw attention to the Factories (2) Bill which was introduced into the House of Commons during the last session and will be considered during the next session. This measure seeks to make every little workshop a factory, to abolish the distinction between textile and non-textile factories, and to subject all to many new and unnecessary rules and regulations which will be a serious matter to the chemical industry and will probably cause some factories to close down. In clause after clause, one finds that a Secretary of State is to have power to make a special order. What this means is that the factory inspection department responsible for the Bill does not know what it wants now, so seeks power to make what further rules it likes at some future time without proper discussion in Parliament.

If this Bill be allowed to get through, no factory occupier will know what the inspector of factories can ask for and what he cannot. An inspector—or inspectorette—is to be allowed to pry into trade secrets without the unfortunate manufacturer being properly protected against leakage as a result. Offences against the Act are to go before a court of summary jurisdiction, a tribunal quite incompetent to deal with such highly technical matters, with no protection to the unfortunate manufacturer against the officials of the factory inspection department. The only persons who will benefit by this Bill, if it become law, are the officials of the Factory Inspection Department, of whom we have a great deal too many already. With the growth of workmen's compensation legislation, factory legislation should dwindle, not increase.—Yours, etc.,

Middle Temple Lane, E.C.4. H. LEWIN ROBINSON.
November 15.

The International Dyestuffs Situation

To the Editor of THE CHEMICAL AGE.

SIR,—In the text of his address to the Society of Dyers and Colourists, West Riding Section, published in the issue of THE CHEMICAL AGE dated October 30, Mr. W. J. U. Woolcock, C.B.E., makes reference to "Indigosol Colours of the I.G." May we be permitted to state that the "Indigosol" series has been patented by Durand and Huguenin S.A., Basle, and that these soluble vat dyestuffs are being sold by Durand and Huguenin S.A. and the German I.G. ? We trust that you will consent to publish this correction. Yours, etc.,

58, George Street, Manchester. BARD AND WISHART.
November 8.

Twelve Years After

To the Editor of THE CHEMICAL AGE.

SIR, — Two years ago you very kindly allowed me to draw your readers' attention to a special fund I started on behalf of blind ex-service men who are not eligible for assistance from St. Dunstan's, and who are not in receipt of pensions, as their blindness has not been recognised as attributable to war service. Since then, the Admiralty, Army Council, and the Air Council have given their support, and such well-known officers as Admirals of the Fleet Earl Beatty and Sir Charles Madden, Field Marshals Lord Allenby and Sir William Robertson, and Air Marshals Sir Hugh Trenchard and Sir John Salmond are assisting me. However, new cases are cropping up every day and money is urgently required to help them. Will those of your readers who still remember the tragedies of the war and are grateful to be alive this Armistice Day show their gratitude by sending me what they can for this fund, remembering that by so doing they will be helping those who helped them during the storm and stress of the great war ?—Yours, etc., E. B. B. TOWSE.

National Institute for the Blind, Chairman.
224–8, Great Portland Street, W.1.

Coal Products, Chemical and Engineering Exhibition

THE National Coal Products, Chemical and Engineering Exhibition, which has been organised by the Manchester Section of the Society of Chemical Industry, will be opened at the City Hall, Deansgate, Manchester, on November 16, 1926. Representatives of firms, and those interested in the coal and allied industries, and in chemical industry, should apply to Mr. A. McCulloch, Honorary Local Secretary of the Society of Chemical Industry, College of Technology, Manchester, for free admission tickets.

Reduction of Power Costs

Paper by Mr. J. E. Hackford

ON Wednesday, November 3, Mr. J. E. Hackford, B.Sc., F.I.C., read before the Hull Engineering and Chemical Society a paper entitled "The Significance of the Cost of a Horse-Power Hour."

Mr. Hackford pointed out that the vitality of a nation was proportionate to the cost of its horse-power hour. We would be on the verge of losing our former prosperity unless the rising generation of engineers pushed with all their might in the direction of maintaining for the Empire the lowest cost of this important unit. This depended on the discovery, acquisition and development of oil lands within the Empire, and on the development of British coal to its maximum energy yield ; both activities must be carried on under British supervision and with British capital. Mr. Hackford dealt then with liquid fuel and its uses, giving tables of the world's production of fuel oil, of the products (petrol, kerosene, lubricating oil, fuel oil, etc.) obtained from crude oil, and of their financial value. An account was also given of the distribution of heavy fuel oil between its users, mainly as follows : shipping, 58 million barrels ; gas and electric plants, 62·2 million barrels ; railroads, 45 million barrels ; and miscellaneous industries, 125 million barrels. The advantages of liquid fuel were discussed, and Mr. Hackford claimed that even considering the difference in prices between coal and oil, there were many benefits to be obtained by using the latter, which had resulted in ever-increasing demands for it at the expense of coal. A lengthy account was then given of the properties and uses of fuel oils, petrol, and kerosene.

Use and Transport of Coal

Summing up, Mr. Hackford said that in Great Britain itself we are fortunately blessed with large quantities of potential power in the form of coal, and the ever present question was how coal should be used so as to place it on an equality with oil, so that the manipulation should be as easy, and the cost of the horse-power hour, if possible, less. It was unfortunate for us as a nation that coal could not be burned directly in an internal combustion engine. Every effort must be made to accomplish this end and to place us on an equality with liquid fuel. Indications were already to hand as to the way we should proceed. By treating coal by means of a gas producer it could indirectly be burned in the internal combustion engine, but at the present time the required apparatus was too costly and too bulky, not only in itself, but also in its auxiliaries.

New methods of transporting coal must be devised, and Mr. Hackford believed that these would be in the direction of the use of powdered coal. The coal would be blown along pipe-lines in much the same manner as oil. The loading of a tank car with coal dust would be accomplished by this means. The air and coal would enter the car at one vent, while the second vent of the car would be fitted with a small dust separator, which would discharge the dust back into the car, allowing the air meanwhile to escape. The danger of coal-dust explosions did not present any more difficulties than the danger of gasolene explosions, and methods and regulations would doubtless be organised to render this proceeding safe to life and property.

£10,000 for the British Association

THE Prince of Wales, as president of the British Association for the Advancement of Science, has gratefully acknowledged a donation of £10,000 made to the funds of the association by Sir Alfred Yarrow, following a donation of the same amount made by Sir Charles Parsons some years ago. Sir Alfred Yarrow, feeling that the present urgent needs of the association in its work for science, should receive precedents over provision for the distant future, has made it a condition that his gift should be expended, as to both capital and interest, within a period of twenty years. Sir Charles Parsons has expressed himself similarly with regard to his gift. The support of these two leaders in industrial science justifies the hope that the association will be still further enabled to strengthen its powers of obtaining general attention for the objects of science, and of affording more steady assistance to scientific research in directions indicated as desirable during the deliberations of its various sections at the annual meetings.

Society of Public Analysts

AN ordinary meeting of the Society was held at the Chemical Society's Rooms, Burlington House, on Wednesday, November 3, Mr. E. Richards Bolton (president) being in the chair.

A certificate was read for the first time in favour of Mr. Stanley Grove Burgess, B.Sc., A.I.C. Certificates were read for the second time in favour of Miss Gertrude Garland Andrew, B.Sc., Messrs. Charles Edward Barrs, F.I.C., Thomas Hedley Barry, Gordon Watson Douglas, B.Sc., Clarence Victor Ferriss, B.Sc., A.I.C., and Reginald Charles Pakes, B.Sc. Mr. Stafford Aston, F.I.C., was elected a member.

Abstracts of Papers

W. R. Schoeller, Ph.D., and C. Jahn continued their contributions on investigations into the analytical chemistry of tantalum, niobium, and their mineral associates, with a sixth paper on the precipitation of the earth acids by sodium compounds. It was pointed out that when tantalic oxide was fused with potassium carbonate and the solution of the mass treated with sodium chloride, 4 : 3 sodium tantalate was precipitated. Niobic oxide treated in the same manner yielded 7 : 6 sodium niobate. The precipitates were dense crystalline powders. The filtrates contained a few milligrammes of non-precipitated earth acid, substantial recovery of which was effected by partial neutralisation to the bicarbonate stage and digestion on the water-bath ; hydrolytic dissociation in alkaline solution took place, and the earth acid was precipitated. Sodium tantalate and niobate were decomposed by dilute acid ; the quantity of the latter was proportional to that of the alkali in the precipitates. This reaction was applied to the indirect volumetric determination of the earth acids in the mixed sodium salts, but the results were rather wide, as the end-point could not be ascertained with sufficient sharpness by the use of colour indicators. The analytical applications of the precipitates were under investigation.

A simple method of testing for sulphites in foods was described by A. E. Parkes, F.I.C. The food (if not a liquid) was mixed with water, and placed, together with fragments of marble and dilute (about 2*N*) hydrochloric acid, in a conical flask, closed with a rubber stopper bearing a small thistle funnel bent twice, and having a small bulb on each limb. The funnel contained a few drops of dilute (0·01*N*) iodine solution and dilute barium chloride solution. After evolution of carbon dioxide had ceased, the flask was heated, and, in presence of a sulphite, the colour of the iodine in the funnel was discharged, and the liquid became opalescent (barium sulphate). The test might be made approximately quantitative.

In a critical review of the methods of analysing waters, sewages, and effluents, with suggestions for their improvement, by J. W. Haigh Johnson, M.Sc., F.I.C., the present methods were shown to yield results often unreliable and inconsistent. Recent modifications in sewage treatment had greatly increased the amount of nitrogen oxidation products in sewage treatment, and had thus increased the difficulties. A comparison of the results given by the Wanklyn, Kjeldahl, acid chemical, and biological processes had indicated that, in its present form, the first was too vague, whilst the acid chemical test yielded only a fifth of the result obtained biologically. A method of combining the Wanklyn test and the alkaline oxidation method was described, and suggestions were made for improving the Kjeldahl test and the biological determination of absorbed oxygen.

Dye Standards

THE United States Bureau of Standards has been working in conjunction with dye manufacturers on the establishment of standards for dyes. In a report just issued, it is stated that the practical use of the spectrophotometric method for the commercial evaluation of dyes has been shown by comparisons with the titanous chloride titration and the usual dyeing test. A dyeing method which is strictly quantitative and reproducible, as well as more rapid than the usual commercial method, has been developed. Work on fastness to washing and fastness to light has been done in co-operation with the American Association of Textile Chemists and Colorists, with the expectation that methods which are standards for all concerned with the dyes and dyed materials will be established.

Chemical Matters in Parliament

Sugar Beet Factories

Mr. Guinness, Minister of Agriculture (House of Commons, November 9), replying to Sir W. de Frece, circulated an official report giving an account of the sugar-beet factories operating in this country, of the capital of each, and of the amount of subsidy received by each. The details were as follows (the first figure given is the issued share capital, the figure in brackets the total subsidy paid up to November 6, 1926) : Cautley factory, £450,507 (£776,900), operating 1924–25, 1925–26, 1926–27 ; Kelham factory, £125,000 (£277,125), operating 1924–25, 1925–26, 1926–27 ; Ely factory, £250,000 (£335,026), operating 1925–26, 1926–27 ; Ipswich, £250,000 (£141,012), operating 1925–26, 1926–27 ; the Colwick and Spalding factories, £425,000 (£258,642), Colwick operating 1924–25, 1925–26, 1926–27, and Spalding, 1926–27 ; Kidderminster factory, £180,000 (£86,216), operating 1925–26, 1926–27 ; the Cupar, Felstead and Poppleton factories, £250,000 (£1,019), operating 1926–27 ; Bury St. Edmunds factory, £300,000 (£138,697), operating 1925–26, 1926–27 ; Wissington factory, £350,000 (£58,208), operating 1925-26, 1926–27 ; Peterborough factory, £175,000 (£8,059), operating 1926–27 ; and Greenock factory, £170,000 (£4,105), operating 1925–26, 1926–27. The total issued share capital is £2,925,507, and the total subsidy paid up to November 6 was £2,085,010. The Cautley and Kelham factories were working before the subsidy came into operation. The amounts of subsidy paid in season 1926–27 varied very considerably, some factories only having commenced working the beet quite recently.

Replying to Sir W. de Frece (House of Commons, November 9), Mr. Guinness said that the average yield per acre of sugar beet in various countries was as follows : England and Wales, 7·82 tons ; Holland, 13·42 tons ; Germany, 10·21 tons ; and Hungary, 9·23 tons.

Chemical Warfare (Research and Experiment)

Sir L. Worthington Evans (House of Commons, November 9), replying to Mr. Ammon, who asked what factories were engaged in the manufacture of poison gases and other chemicals for war purposes, and the establishment in each case, said that there was one research establishment at Sutton Oak, at which small quantities of gas required for experimental purposes were produced, but the establishment was mainly concerned with research and experimental work. It had a staff of eight with some 55 subordinates. As regards the Experimental Station, Porton, the staff, for which provision was made in Estimates 1926, consisted of 22 naval, military and air officers, 56 civilian scientists and one naval, 68 military and 120 civilian subordinate staff.

Wrong Description of Goods

BEFORE Mr. E. J. Little in the Dublin District Court on Thursday, October 28, the Irish Industrial Development Association (Incorporated), 102-3, Grafton Street, Dublin, summoned the Irish Disinfectants, Ltd., 5, Usher's Place, Dublin, for applying a certain false trade description, namely, " Basilikil No. 2 " to a certain goods, namely, liquid matter contained in five casks supplied to the Urban District Council of Dun Laoghaire on September 29, contrary to the Merchandise Marks Act, 1887. There was a second count for selling the goods. Mr. T. Costelloe, M.P.S.I., 149, Lower Drumcondar Road, was the defendant on a similar summons at the suit of the same complainants. Mr. Craig said that his clients pleaded guilty to the second count in the summons. It was really Mr. Costelloe who was responsible, and he took all the blame. Unfortunately, Irishmen did not seem to want Irish disinfectants, and they had to stop manufacturing, and were going out of business. The people preferred to try disinfectants manufactured in Germany or elsewhere. Mr. Costelloe sent the complainants material which he believed to be as good as the kind that was ordered, and which he had not got. Mr. Shannon said that the complainants took a serious view of this case. The five barrels of creosote were supplied to the Dun Laoghaire Urban Council, having the label " Basilikil No. 2," professing to be an article of Irish manufacture. Mr. Little dismissed the first count in each summons, and on the second count fined the defendants £5 each and costs.

From Week to Week

THE FORMATION OF "I.C.I." and work resulting therefrom has compelled Sir Alfred Mond to cancel a number of political engagements.

THE NATIONAL COAL PRODUCTS, Chemical and Engineering Exhibition opens at the City Hall, Manchester, on Tuesday next, November 16.

DR. G. D. BEAL, formerly professor of chemistry in the University of Illinois, has been appointed assistant director of the Mellon Institute of Industrial Research, Pittsburgh, to take charge of work on pharmaceutical chemistry.

APPLICATIONS ARE INVITED for the post of Assistant Chemist for Soil Investigations, in the Sudan, under the Empire Cotton Growing Corporation. Age 24-30. Initial salary, £E480 to £E540. Dr. E. M. Crowther, Rothamsted Experimental Station, Harpenden, Herts.

SIR ALFRED MOND and the Marquis of Reading, directors of Imperial Chemical Industries, have been elected directors of the Palestine Electric Corporation. The Marquis of Reading becomes chairman. Mr. P. Rutenberg, the managing director, is proceeding to Palestine to carry out the preliminary work.

THE FEDERATION OF BRITISH INDUSTRIES has invited the Association of German Industry to a meeting in London on a date between November 28 and December 5. The reply of the Germans has not yet been received, but it is likely that Dr. Duisberg, of the I.G., will be a member of any delegation which is sent.

THE ESTABLISHMENT OF a municipal pathological and bacteriological laboratory in Plymouth is recommended by the medical officer of health. He is of the opinion that work which could be undertaken on a commercial basis would go far towards making the laboratory self-supporting, and that local authorities in the West of England, as well as agriculturists, would no doubt avail themselves of its services.

JOHN MITCHELL, aged 44, a chemical worker, of Widnes, employed by the United Alkali Co., was remanded at Fleetwood on Monday charged with the attempted murder of Jane Ellen Hawtin, a married woman living with her husband in Ormerod Street, Burn Naze, Fleetwood. The woman was found in bed at her home on Saturday in a semi-conscious condition suffering from extensive head wounds. She was taken to Fleetwood Hospital.

HYDROGEN SULPHIDE POISONING in certain oil-bearing areas in the United States has been investigated by W. P. Yant and H. C. Fowler, whose work is embodied in Bulletin 231 of the U.S. Bureau of Mines, "Hydrogen Sulphide Poisoning in the Texas Panhandle, Big Lake, Texas, and McCamey, Texas, Oilfields." The paper contains a valuable chart of the effects on human beings of hydrogen sulphide of varying concentration, acting for various periods.

DR. FRIDTJOF NANSEN, after his recent installation as Rector of St. Andrews University, visited University College, Dundee. He declared open new reconstructed chemical laboratories which have been provided through the generosity of the Carnegie Trustees. Professor Sir James Walker, of Edinburgh University, presided at the function, and among those present were Principal Sir James Irvine, and Professor G. G. Henderson, of Glasgow University, president of the Institute of Chemistry.

SWISS DYES are being imported into Germany in greatly increased quantities. The value in September was 871,600 francs, as compared with 358,300 francs in September, 1925. Swiss dyes, which for a long time have been subjected in Germany to a special licence, can now enter free of duty and without any permit. As exemption from duty is provided for in the new commercial treaty concluded between the two countries which will probably come into force on January 1, 1927, it is expected that this rise of Swiss dye exports to Germany will further increase.

THE SNIA VISCOSA CO. of Turin is reorganising its capital, and the position was put before the concern's shareholders at a meeting held in Turin on November 11. The capital is to be reduced from 1,000,000,000 to 750,000,000 lire by writing the issued shares down from 200 to 150 lire, the amount written off being transferred to reserve. It is also proposed to increase the capital to 1,000,000,000 lire by the creation of new shares to be issued at par, and to make a further issue of shares on the London Stock Exchange to the value of £1,400,000.

DR. W. E. GARNER, of University College, London, delivered a "Popular Talk" on "Liquid Air," in aid of King Edward's Hospital Fund for London, at the Regent Street Polytechnic on Friday. The demonstration included the boiling of a "magic kettle" on a block of ice, the driving of an engine with liquid air, and numerous other experiments. Sir Douglas Hogg, K.C., M.P., was in the chair. The "talks" are to be continued during the month, among them being one by Dr. Ezer Griffith on "The Romance of Refrigeration," on November 26. At Dr. Griffith's lecture small refrigerating plants will be shown at work. Tickets, price 2s. 6d. or 5s., may be obtained from the Secretary, King Edward's Hospital Fund for London, 7, Walbrook, London, E.C.4.

VICKERS, LTD., have received an order from Bibby Bros. and Co. to equip the motor vessels *Dorsetshire* and *Somersetshire* for service as Government transports.

DR. K. C. D. HICKMAN will read a paper on "A Chemical Aspect of Sulphide Sensitivity" at the meeting of the Royal Photographic Society to be held on Tuesday, November 16.

MR. PHILIP LEWIS, B.Sc., A.I.C., a student of Liverpool University, has been appointed to the position of research chemist at the National Smelting Co.'s Works, Avonmouth.

MR. J. KIRK, who has been the Government chemist at Liverpool for 14 years, was recently presented by his colleagues with a pair of Zeiss binoculars and cut-glass ware on his retirement. Mr. Kirk is being succeeded by Mr. J. E. Byles, of the Government Laboratory, London.

THE INDUSTRIAL ALCOHOL MANUFACTURERS ASSOCIATION of the United States is undertaking a great campaign to educate the American public in the use of denatured alcohol in automobile radiators as an "anti-freeze." The alcohol offered for the purpose will be known as "Freeze Foil."

INDIGO EXPORTS FROM INDIA have lately been as follows (amounts in cwts.; figures in brackets are corresponding quantities for 1925): June, 1926, 154 (72); July, 1926, 234 (40); August, 1926, 150 (160); January-August, 1926, 1,629 (1,062). The quantity exported in January-August, 1924, was 3,087 cwts.

MISS G. WIGGLESWORTH, M.Sc., gave a lecture on "Plants Formerly Used for Dyes" at the University of Manchester on Wednesday, November 3. She made particular reference to the work of Dr. Plowright about 1900 on the extraction of dye substances from plants, and exhibited specimens of dyeings from various plants.

DR. LEON LILIENFELDT'S ADDRESS on "The Chemistry of Cellulose" which should have been given recently at a joint meeting of the Manchester Sections of the Society of Chemical Industry, the Institute of Chemistry, the Society of Dyers and Colourists, and the Manchester Literary and Philosophical Society, was cancelled.

RECENT WILLS INCLUDE: Lord Stevenson, of Holmbury House Holmbury St. Mary, Surrey, and Old Queen Street, London, E.C. chairman of the standing committee of the British Empire Exhibition at Wembley, and author of the "Stevenson" plan for the restriction of the output of rubber, who died in June, £313,706 (net personalty, £250,547).

THE WESTERN VISCOSE SILK MILLS, LTD., are about to commence production of artificial silk on a commercial scale. It is reported that an output of about half a ton per day will be attained at the outset and that this will be gradually increased. For some time sample lots have been made of the firm's special "Wescosyl" silk, and this has been on show at recent textile exhibitions.

DR. G. C. CLAYTON, M.P., in a recent sp ech at Widnes, said in, reference to the formation of "I.C.I.," that if manufacturers were to compete successfully in the markets of the world they must organise. But all efforts would be null and void unless men would work with their employers. He was glad to say that in the chemical trade the masters would get the support they wanted. They were determined that the chemical trade was not going to be lost to England.

DR. KUNO B. HEBERLEIN, who was actively associated with his brother, the late Dr. Ferdinand Heberlein, and the late Mr. Thomas Huntington in the founding of the firm of Huntington and Heberlein, has now returned to London after an absence of 20 years spent in directing mining and metallurgical enterprises in the United States of America and Mexico. Huntington, Heberlein & Co., Ltd., announce that Dr. Kuno B. Heberlein has accepted a seat on the board of the company, which will once more have the benefit of his authoritative advice and extensive experience.

AUTOMATIC AND ELECTRIC FURNACES, LTD., 173-175, Farringdon Road, London, E.C.1, announce that they have available for the use of engineering societies and other technical associations a complete series of lantern slides, illustrating electric furnaces for hardening, tempering, carburising, annealing (ferrous and non-ferrous metals, glass, etc.), together with component parts of such furnaces, automatic temperature controls, and wiring diagrams, connected with various forms of circuits. Full descriptions of these slides in the form of a lecture can be obtained.

Obituary

MR. JAMES PARK, bleacher, at Old Mansion House, Carmyle, on November 4, in his ninety-fifth year.

HERR RICHARD ROSTERG, managing director of the Kaligewerkschaft Glückauf-Sondershausen.

MR. CHARLES RUMBLE, F.I.C., formerly chemist to Prices Patent Candle Co., Ltd., Battersea, on October 14.

MR. GEORGE MERCK, chairman of the board of Merck and Co., of New York, at his home in West Orange, New Jersey, on October 21, aged 59. Mr. Merck was born in Darmstadt, Germany, and was a son of Wilhelm Merck, head of the famous chemical firm of that city.

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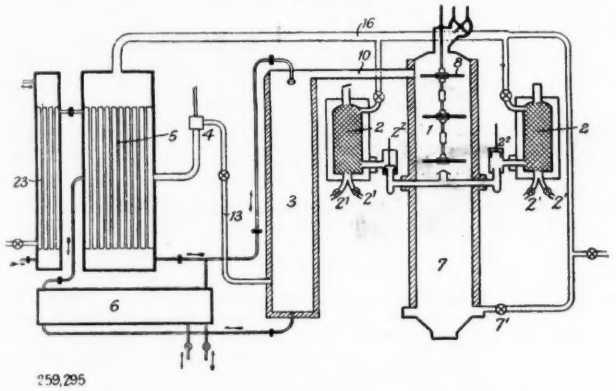
Abstracts of Complete Specifications

259,295. Low Temperature Distillation of Coal, Process and Apparatus for. M. W. Travers, 147, Queen Victoria Street, London, E.C.4, and F. W. Clark, Fieldhead, Maltmans Road, Lymm, Warrington, Lancs. Application date, July 6, 1925.

Coal is distilled by means of superheated steam at a temperature below 600° C., and the dirty steam from the retort is not returned but is used for generating clean steam. Steam is passed from a pipe 16 into one of a pair of superheaters 2 and is heated to 650° C., and then passes into the retort 1 through



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valve 2^2. At the same time generator gas and air enter through valves 2^1 into the other superheater 2 to heat the checkerwork. The retort 1 is provided with an agitator 8. The steam and distillation products pass through a pipe 10 into a scrubber 3, supplied with hot water from a sprayer 11, so that the tar is condensed and the steam de-superheated. The steam then passes through a pipe 13 to a thermo-compresser 4 supplied with live steam at high pressure, and the mixture passes to a heat interchanger 5 supplied with water from an economiser 6. The steam generated passes through pipe 16 to the superheaters, and also through valve 7^1 into the base of the retort to cool the retort. The residual gas passes to the condenser 23.

259,329. Chlorination of Organic Compounds. O. Silberrad, Silberrad Research Laboratories, Buckhurst Hill, Essex, and A. Boake, Roberts and Co., Ltd., Carpenters Road, Stratford, London. Application date, July 22, 1925.

The process is for chlorinating organic compounds which are capable of undergoing substitution when treated with chlorine, particularly such compounds as are only chlorinated with difficulty by means of sulphuryl chloride. In this invention, the chlorination is effected in the presence of catalysts such as chlorides of phosphorus, manganese, arsenic, selenium, tellurium, antimony, bismuth, molybdenum, and/or bromine, and except in the manufacture of monochlorbenzene, the chlorides of iron, sulphur, and aluminium. The latter is used only with such aromatic compounds as are capable of undergoing the Friedel and Krafts reaction. The catalysts may be added as anhydrous chlorides or as elements, which are readily converted into chlorides. It has been found that the chlorides of antimony, bismuth, iron, molybdenum, aluminium, tellurium, and selenium, are particularly suitable for effecting substitution in the ring; phosphorus, arsenic, manganese, and bromine favour side chain substitution; and sulphur favours both types of substitution. The process is suitable for the manufacture of side chain substituted aromatic hydrocarbons such as benzyl chloride, xylyl chloride, ω-chloroethyl benzene; ring substituted derivatives of aromatic hydrocarbons such as benzene, naphthalene, toluene, xylene, anthracene, perylene, etc.; also acetic acid, benzoic acid, methyl anthraquinone, and the further chlorination of partly chlorinated compounds.

259,348. Hydrochloric Acid, Manufacture of. D. Tyrer, Stoneleigh, West Villas, Stockton-on-Tees. Application date, August 19, 1925.

Specification No. 183,323 (see The Chemical Age, Vol. VII, p. 282) describes the manufacture of red oxide of iron by treating a mixture of ferrous chloride and hydrated ferric oxide with steam and air. It has now been found that in the production of hydrochloric acid the reaction between steam, air or oxygen, and ferrous chloride is improved by adding yellow hydrated oxide of iron, or hydrated ferrous oxide, or ferrous carbonate to the ferrous chloride. The temperature of the reaction is 350°–450° C.

259,395. Barium Oxide and/or Hydroxide, Production of. B. P. Hill and The Blaydon Manure and Alkali Co. (1877), Ltd., Blaydon-on-Tyne, Durham. Application date, October 30, 1925.

Barium carbonate or a mineral such as witherite is finely divided and introduced continuously into a furnace together with pulverised coal or other fuel. The carbonate may be carried into the combustion chamber by the air blast which feeds the burner. The semi-fused residues or dust may be collected in a dust chamber, or by cyclone separator or electrostatic precipitator, and the barium oxide and/or hydroxide is extracted with hot water.

259,407. Iron Carbonyl, Production of. J. Y. Johnson, London. From Badische Anilin und Soda Fabrik, Ludwigshafen-on-Rhine, Germany. Application date, November 13, 1925.

It has been found that when iron carbonyl is produced from metallic iron prepared separately, such as iron sponge, iron turnings, or commercial powdered iron, the yield of iron carbonyl is low, due to the superficial oxidation of the iron. If this oxidation is avoided or removed, a good yield of iron carbonyl can be obtained. Thus if Swedish iron sponge is employed, the material is broken up in an atmosphere of nitrogen or carbon dioxide, and if oxidised, is reduced with hydrogen for a short time. The iron should not contain much impurity, but some nickel, aluminium, or bismuth may be present to act as catalysts. A good yield of iron carbonyl can be obtained at ordinary pressure and 60° C., provided all oxidising gases such as oxygen or carbon dioxide are removed by passing the gases over heated copper and soda lime. Several examples of the use of iron from various sources are given.

259,431. Obtaining Liquids in a Solid Form, Process for. W. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Leverkusen, near Cologne, Germany. Application date, December 29, 1925.

A liquid to be solidified is mixed with magnesium alcoholate in the presence of a small quantity of water. In an example, methyl alcohol containing 0·5 to 1 per cent. of water 120 parts, is mixed with a solution of 1 part of magnesium in 30 parts of alcohol. The mixture sets in a short time to a jelly. Ethyl and other alcohols may be similarly solidified. Other examples are given of the solidification of castor oil and hydrocyanic acid. In another example, absolute alcohol is mixed with such quantity of sodium stearate that the product melts at 42° C. A small quantity of water is then added, and then a small quantity of magnesium alcoholate. The solid product burns without melting. Other liquids which may be treated include epichlorhydrin, chloroform, benzene, xylene, and alcoholic ammonia.

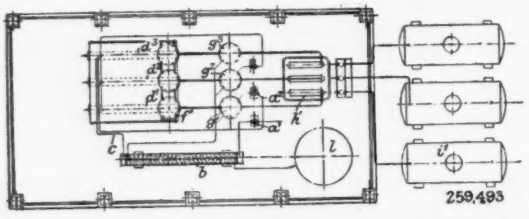
259,447. Chromates, Manufacture of. W. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. Application date, February 8, 1926.

In the manufacture of chromates from chrome ore and alkali, a diluent such as chalk, dolomite, or iron oxide is usually added, but these are not usually recoverable. In this inven-

tion, the diluent is dispensed with, and the ore is present in distinct grades of fineness of which the coarse is of such size and quantity that at least 15 per cent. of the total ore does not pass a screen of 4,900 mesh per square centimetre. The ore and the decomposition agent are heated in a mechanical furnace in an oxidising atmosphere to 1,100° C., and the product is leached with water containing a small amount of acid to decompose the aluminate and dissolve the chromate. The residue consists of unaltered chrome ore, alumina, magnesia and iron oxide, and this is treated with dilute acid of 30° Bé. If less than the theoretical quantity of acid is employed, the ore still contains iron and magnesium oxide, and these impurities may be allowed to increase. The melt may become so enriched in iron and magnesium oxide that the whole of the chrome ore is attacked by the decomposition agent. The residue is then free from chromium and may be discarded. If an excess of acid is used, the recovered ore is pure. Some detailed examples of the process are given.

259,493. Cracking Oils, and Other Liquid and Solid Hydrocarbonaceous Materials. G. E. Heyl, 36, Victoria Street, London, S.W.1. Application date, May 6, 1926.

The oil or other material is treated in a number of chambers, each maintained at a cracking temperature and each delivering vapour into a separate fractionating column so combined



in series that vapours condensed in each of the columns except the last pass into the cracking chamber delivering into the next fractionating column. The illustration shows the apparatus in plan. Oil is forced by a pump a^1 through a preheater b and pipes c to a retort d^1 in which it is received into a removable liner or pan e. The oil vapour passes through a carbon separator f^1 to a dephlegmator g^1, and the uncondensed vapour then passes to a condenser h^1, from which the condensate passes to a receiver i^1. The condensate from the dephlegmator passes to a pump a^2 and then to a second retort d^2. The vapour from the second retort is treated in a similar manner and the condensate from the dephlegmator g^2 passes to the third retort d^3 where it is again treated. The condensate in the last dephlegmator g^3 passes through the preheater b to the residue receiver l. Each fractionating chamber may be slightly above atmospheric pressure.

259,498. Anhydrous Magnesium Chloride, Process for the Production of. A. L. Mond, London. From I. G. Farbenindustrie Akt.-Ges., 28, Mainzer Landstrasse, Frankfurt-on-Main, Germany. Application date, May 13, 1926.

It has been found that all kinds of magnesia may be readily transformed into magnesium chloride by the action of chlorine, if sufficient space is left around the grains to accommodate the considerably more voluminous solid magnesium chloride. The space obtained by the removal of carbon dioxide during the calcination of magnesium carbonate is not sufficient. The process may be carried out by employing magnesium oxychloride, which when heated swells up and then solidifies. The mass is broken up and then treated with a current of chlorine. Alternatively, finely ground burnt magnesite is mixed with charcoal and sawdust, and saturated with magnesium chloride lye. The mass sets hard and is then granulated, dried, and chlorinated as before.

259,507. Alkylation of Aromatic Hydrocarbons. P. C. Rushen, London. From The Naugatuck Chemical Co., Elm Street, Naugatuck, Conn., U.S.A. Application date, June 7, 1926.

In the alkylation of aromatic hydrocarbons by the Freidel and Krafts reaction, a heavy dark brown oil separates out. This oil may be a reaction product of the hydrocarbon, alkylhalide and aluminium chloride, and has catalytic properties and can be used in the alkylation process. This substance loses its effectiveness, and the object is to regenerate it. It has been found that the addition of a small quantity of metallic aluminium will regenerate this catalyst when exhausted. An example is given of the treatment of benzol with ethyl chloride in the presence of aluminium chloride, and the catalytic oily mass is separated and added to fresh quantities of benzol and ethyl chloride. This is repeated while the activity of the catalyst is maintained by occasional additions of metallic aluminium to form fresh aluminium chloride in the reaction mixture.

Note.—Abstracts of the following specifications which are not accepted, appeared in The Chemical Age when they became open to inspection under the International Convention :—231,991 (Akt.-Ges. für Chemiewerte), relating to a method of performing chemical reactions, see Vol. XII, p. 616 ; 240,147 (H. and S. Bondi and O. Neurath), relating to electrolytic extraction of tin from alloys with lead, see Vol. XIII, p. 47 (Metallurgical Section) ; 240,436 (Montecatini Soc. Generale per l'Industria Mineraria ed Agricola), relating to synthetic ammonia, see Vol. XIII, p. 560 ; 245,719, 253,149, and 253,150 (A. F. Meyerhofer), relating to production of metal compounds, see Vol. XIV, p. 254 and Vol. XV, p. 209 ; 246,512 (O. Lederer and W. Stanczak), relating to aluminium salts, see Vol. XIV, p. 335 ; 247,226 (F. Uhde), relating to synthesis of ammonia, see Vol. XIV, p. 386 ; 251,974 (Newport Co.), relating to purification and isolation of anthraquinone beta sulphonic acid, see Vol. XV, p. 88.

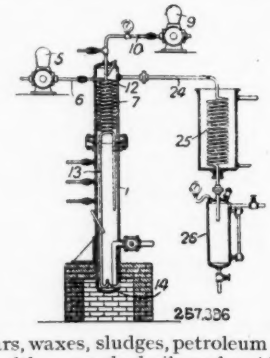
International Specifications not yet Accepted

257,885. Treating Indiarubber Latex. Anode Rubber Co., Ltd., 15, Throgmorton Avenue, London. International Convention date, September 4, 1925.

Homogeneous rubber deposits are produced on metallic bases by electrophoresis. Constituents of latex such as ammonia, which favour the evolution of gas at the anode, are previously removed, or converted into harmless compounds, *e.g.*, by dialysis, centrifuging, aeration, evaporation, or treatment *in vacuo*, or with aldehydes or acids. Latex may be used which contains no ammonia but has been preserved by bactericides such as thymol. The current density is regulated so that the potential at the deposition surface does not cause electrolysis. The deposition base may be coated with gelatine or collodion impregnated with a coagulating agent. The anode may be of zinc, cadmium, iron, or lead.

257,886. Oxidising Oils, etc. W. B. D. Penniman, 341, Courtland Street, Baltimore, U.S.A. International Convention date, September 5, 1925.

Motor fuels are obtained from the volatile oxygenation and disintegration products of crude petroleum and its distillates,



shale oils and tars, waxes, sludges, petroleum residues, asphaltic oils, asphalt, malthas, cracked oils and residues, wood tar oils and wood tar, peat and lignite distillates, coal tar oils and coal tars, oils containing coal, etc., in suspension, which may contain formic, acetic, and other acids, aldehydes, ketones, saturated and unsaturated alcohols. The fuel may contain additions such as gasoline, and may have a boiling point of 400°–500° F. It has marked anti-knock properties. Oil is supplied by a pump 5, pipe 6, and coil 12, and air by a pump 9, pipe 10, coil 7, and pipe 13 having a nozzle 14 directed upwards in a vertical still 1. The products pass to a condenser 25 and receiver 26. The temperature may range from 300° F. to 1000° F. and the pressure may be 300 lb. per sq. in. Metallic oxides may be present, and neutralising agents such as alkali

carbonates. The distillate separates into an upper water-insoluble layer, and a lower aqueous solution of organic substances. Acids, phenols, and aldehydes are removed from the upper layer, which is then distilled. The distillate up to 400° F. which may contain up to 3 per cent. of oxygen, and also those boiling at 400°–500° F. may be used as gasoline substitutes. The lower layer is fractionally distilled between 20° C. and 95° C. Acetaldehyde is first removed, and the later fractions are redistilled with caustic soda to obtain an anti-knock liquid boiling at 40°–85° C. for addition to gasoline.

257,907. Hydroxy Acid Esters. Canadian Electro Products Co., Ltd., 83, Craig Street West, Montreal. (Assignees of H. W. Matheson and K. G. Blaikie, 83, Craig Street West, Montreal, Canada.) International Convention date, September 3, 1925.

These esters are obtained by the action of alcohols on cyanhydrins of ketones or aldehydes in the presence of water and a mineral acid, the latter being sufficient to combine with the liberated ammonia. Acetaldehyde cyanhydrin is warmed with ethyl alcohol, hydrogen chloride, and the requisite quantity of water to obtain ethyl lactate. The cyanhydrins are obtained by the reaction of anhydrous hydrocyanic acid and an anhydrous aldehyde or ketone in the presence of a little alkali or cyanide. Other examples are given of the production of the ethyl ester of furfuryl glycollic acid, the ethyl ester of α-hydroxy-*n*-valeric acid, the ethyl ester of α-hydroxy-isobutyric acid, and the ethyl ester of mandelic acid.

Latest Notifications.

260,542. Refrigeration apparatus. Silica Gel Corporation. October 28, 1925.

260,543. Manufacture of tanning-agents. I. G. Farbenindustrie Akt.-Ges. October 28, 1925.

260,544. Process of preparing chloro-hydroxy-anthraquinones. Newport Co. November 2, 1925.

260,550. Polymerised vinyl-chloride modification and process of utilising the same. Dyk, L. A. Van. November 2, 1925.

260,552. Processes for converting alkali sulphides into alkali sulphites. West Virginia Pulp and Paper Co. October 29, 1925.

260,564. Method of producing twisted artificial silk from cuprammonium cellulose solutions according to the wet stretch-spinning process. Bemberg Akt.-Ges., J. P. November 2, 1925.

260,567. Methods of producing or reactivating active carbon. Verein für Chemische Industrie Akt.-Ges. October 27, 1925.

260,568. Manufacture of dinitro products of perylene and its compounds. Bensa, F. October 28, 1925.

260,575. Manufacture of linings for vessels which are to resist acids. I. G. Farbenindustrie Akt.-Ges. October 27, 1925.

260,577. Process for the manufacture of dicyclic derivatives of penta-methylene. Mannich, C. October 27, 1925.

260,588. Manufacture and production of vat dyestuffs of the anthraquinone series. I. G. Farbenindustrie Akt.-Ges. October 29, 1925.

260,604. Manufacture of alkylnaphthalenes. I. G. Farbenindustrie Akt.-Ges. October 28, 1925.

260,605. Manufacture of alkamine esters of *N*-substituted ortho-aminobenzoic acid. I. G. Farbenindustrie Akt.-Ges. October 28, 1925.

260,623. Manufacture of intermediate products for the dyestuff industry. Soc. of Chemical Industry in Basle. October 31, 1925.

Specifications Accepted with Date of Application

237,294. Vat dyestuffs, Manufacture of. Farbwerke vorm. Meister, Lucius, und Brüning, July 21, 1924.

260,058. Intermediates and dyestuffs, Manufacture of. British Dyestuffs Corporation, Ltd., K. H. Saunders and M. Mendoza. July 31, 1925.

243,666. Purifying oil, Method of and apparatus for. Sharples Specialty Co., November 29, 1924.

244,109. Hot substances which must remain excluded from the action of the air until they reach a low temperature, Process and apparatus for. J. Sommermeier. December 3, 1924.

245,762. Metallic nitrides in admixture with lithium nitride or amide, Process for the manufacture of. Soc. d'Etudes Minières et Industrielles. January 8, 1925.

248,339. Alkaline earth salts of the carboxylic acids of aromatic sulphon-halo-alkali amides, Process for the manufacture of. Esseff Chemische Industrie-U. Handels Akt.-Ges. February 25, 1925.

253,935. Continuous distillation of tar and like substances and continuous rectifying of their by-products, Method and apparatus for. C. Ab-der-Halden. June 22, 1925. Addition to 239,841.

249,138, 254,262, and 255,816. Charcoal, Manufacture of. E. Urbain. March 12, June 25, and July 22, 1925. 254,262 and 255,816 additions to 249,138.

254,310. Nitriles of the perylene series, Process for manufacturing. F. Bensa. June 26, 1925.

260,020. Carbonaceous materials, Coking and distillation of. J. F. L. Moeller. June 25, 1925.

260,026. Hardening of steel. P. M. Salerni. July 16, 1925.

260,047. Sulphuric acid, Process for the production of. M. S. Stutchbury. (*Metallbank und Metallurgische Ges. Akt.-Ges.*) Addition to 149,648 as modified by 187,016.

260,062. Precipitating hafnium and zirconium on an incandescent body, Process of. W. J. Tennant. (*Naamlooze Vennootschap Philips' Gloeilampenfabrieken.*) August 7, 1925.

260,133. Refining or separating soluble substances by crystallisation, Process for. Aktieselskapet Krystal and F. Jeremiassen. January 5, 1926.

260,143. Melting iron and other metals, Methods of. Y. A. Dyer. January 25, 1926.

260,159. Nitrogenous derivatives of terpene alcohols. R. Wolffenstein. March 24, 1926.

260,186. Nitro compounds, Process for reducing. W. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) June 10, 1926.

249,474. Chlorine and sulphate from alkali chlorides, Process for producing. Zellstofffabrik Waldhof and E. Schmidt. March 21, 1925.

260,129. Desulphurising naphthalene or paraffin, Process for. K. Bube. December 22, 1925.

Applications for Patents

Allgemeine Ges. für Chemische Industrie. Process for eliminating water from liquid sulphurous acid. 27,946. November 6. (Germany, November 19, 1925.)

Allgemeine Ges. für Chemische Industrie. Process for liberating hydrocarbons, etc. 27,947. November 6. (Germany, March 30, 1925.)

Aluminium Co. of America. Refractory articles. 27,489. November 2. (United States, December 7, 1925.)

Aluminium Co. of America. Purification of alumina. 27,595. November 3. (United States, December 4, 1925.)

Anderson, J., British Alizarine Co., Ltd., and Dawson, W. H. Production of benzanthrones, etc. 27,513. November 3.

British Dyestuffs Corporation, Ltd., Chapman, E., and Shepherdson, A. Manufacture, etc., of adhesives. 27,462. November 2.

British Dyestuffs Corporation, Ltd., Chapman, E., and Shepherdson, A. Processes involving drying of surfaces. 27,463. November 2.

British Dyestuffs Corporation, Ltd., and Chapman, E. Friction surfaces, etc. 27,600. November 3.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Manufacture of solutions. 27,845. November 5.

Cassella and Co., Ges., L. Dyestuffs. 27,587. November 3. (Germany, November 7, 1925.)

Coley, H. E. Manufacture of zinc. 27,457. November 2.

Coley, H. E. Apparatus for manufacture of zinc, etc. 27,458. November 2.

Courtaulds, Ltd., Hegan, H. J., and Taylor, J. H. Treatment of cellulose fibres. 27,330. November 1.

Deutschen Bergin-Akt.-Ges. für Kohle-und Erdolchemie. Liquefaction of carbon by hydration. 27,836. November 5. (Germany, December 11, 1925.)

Ehrenreich, A. Manufacture of glues, etc. 27,742. November 4. (Belgium, July 12.)

Etablissements Poulenc Frères. Preparation of concentrated solutions. 27,588. November 3. (France, January 19.)

Hackford, J. E. Oil-fuel burners. 27,695. November 4.

Hackford, J. E. Burning solid and colloidal fuels. 27,696. November 4.

Hall, A. J., and Silver Springs Bleaching and Dyeing Co., Ltd. Production and colouring of textile yarns, etc. 27,536. November 3.

I. G. Farbenindustrie Akt.-Ges. Process for production of cobaltous acetate. 27,494. November 2. (Germany, November 27, 1925.)

I. G. Farbenindustrie Akt.-Ges. Process of obtaining liquid organic substances from gas mixtures. 27,585. November 3. (Germany, December 3, 1925.)

I. G. Farbenindustrie Akt.-Ges. Increasing hardness of magnesium alloys. 27,726. November 4. (Germany, December 24, 1925.)

I. G. Farbenindustrie Akt.-Ges. Mounting for furnace electrodes. 27,829. November 5. (Germany, December 28, 1925.)

I. G. Farbenindustrie Akt.-Ges. Manufacture of condensation products of urea and formaldehyde. 27,912. November 6. (Germany, November 7, 1925.)

Lessing, R. Treatment of materials with binders, etc. 27,512. November 3.

Metallbank und Metallurgische Ges. Akt.-Ges., and Mond, A. L. Purifying and cooling gases. 27,560. November 3.

Scheller, E. Process for arsenizing organic compounds. 27,864. November 5. (Austria, November 9, 1925.)

Slade, R. E., and Synthetic Ammonia and Nitrates, Ltd. Obtaining oils from coal. 27,640. November 4.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £37 per ton, Powder, £39 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° TW.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, packages extra, returnable.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystal, £23 per ton. Powder, £24 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 12s. 6d. to £5 17s. 6d. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 64 O.P.—Industrial, 3s. 1d. per gall. Mineralised, 3s. 8d. to 4s. per gall., in each case according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3⅞d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 per ton for home market, 1-cwt. iron drums included.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—4⅞d. to 7¼d. per lb. Crude 60's, 1s. 5d. to 1s. 9d. per gall.

ACID CRESYLIC 99/100.—2s. 6d. per gall. Steady. 97/99.—2s. to 2s. 9d. per gall. Pale, 95%, 1s. 10d. to 2s. 6d. per gall. Dark, 1s. 9d. to 2s. 4d. per gall.

ANTHRACENE.—A quality, 2½d. to 3d. per unit. 40%, 3d. per unit.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.; both according to gravity.

BENZOL.—Crude 65's, 1s. 3d. to 1s. 5d. per gall., ex works in tank wagons. Standard Motor, 1s. 8½d. to 2s. 3d. per gall., ex works in tank wagons. Pure, 2s. 3d. to 3s. per gall., ex works in tank wagons. Scarce and firm.

TOLUOL.—90%, 2s. to 3s. 3d. per gall. Firm. Pure, 2s. 3d. to 3s. 6d. per gall.

XYLOL.—2s. 3d. to 3s. per gall. Pure, 4s. per gall.

CREOSOTE.—Cresylic, 20/24%, 10½d. per gall. Standard specification, 6¾d. to 8½d.; middle oil, 7¾d. to 7¾d. per gall. Heavy, 8¾d. to 9d. per gall.

NAPHTHA.—Crude, 10d. to 1s. 1d. per gall. according to quality. Solvent 90/160, 2s. to 2s. 1d. per gall. Solvent 95/160, 2s. 1d. to 2s. 2d. per gall. Solvent 90/190, 1s. 3d. to 1s. 4d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £3 10s. to £5 10s. per ton. Whizzed or hot pressed, £5 10s. to £7 10s. per ton.

NAPHTHALENE.—Crystals, £11 to £12 10s. per ton. Quiet. Flaked, £11 to £13 per ton, according to districts.

PITCH.—Medium soft, 182s. 6d. to 200s. per ton, according to district.

PYRIDINE.—90/140, 15s. to 17s. per gall. Nominal. Heavy, 7s. to 10s. per gall. 90/180, 9s. to 9s. 6d. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. 6d. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—8s. per lb.

ACID H.—3s. 3d. per lb. 100% basis d/d.

ACID NAPHTHIONIC.—2s. 2d. per lb. 100% basis d/d.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb. 100% basis d/d.

ACID SULPHANILIC.—9d. per lb. 100% basis d/d.

ANILINE OIL.—9½d. per lb. naked at works.

ANILINE SALTS.—9½d. per lb. naked at works.

BENZALDEHYDE.—2s. 1d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—3¾d. to 4d. per lb.

m-CRESOL 98/100%.—2s. 3d. per lb. Limited enquiry.

p-CRESOL 32/34° C.—2s. 3d. per lb. Limited enquiry.

DICHLORANILINE.—2s. 3d. per lb.

DIMETHYLANILINE.—2s. per lb. d/d. Drums extra.

DINITROBENZENE.—9d. per lb. naked at works.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—11d. to 1s. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb. d/d.

B-NAPHTHYLAMINE.—3s. per lb. d/d.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 9d. per lb. d/d.

NITROBENZENE.—7d. per lb. naked at works.

NITRONAPHTHALENE.—10d. per lb. d/d.

R. SALT.—2s. 4d. per lb. 100% basis d/d.

SODIUM NAPHTHIONATE.—1s. 9d. per lb. 100% basis d/d.

o-TOLUIDINE.—9d. per lb. naked at works.

p-TOLUIDINE.—2s. 2d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 to £10. Grey, £17 10s. per ton. Liquor, 9d. per gall. 32° Tw.

CHARCOAL.—£8 to £10 per ton, according to grade and locality.

IRON LIQUOR.—1s. 6d. per gall. 32° Tw. 1s. 2d. per gall. 24° Tw.

RED LIQUOR.—9½d. to 1s. per gall.

WOOD CREOSOTE.—2s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—4s. per gall., 60% O.P. Solvent, 4s. per gall, 40% O.P. Both scarce and in good demand.

WOOD TAR.—£3 to £5 per ton, according to grade.

BROWN SUGAR OF LEAD.—£41 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 5½d. per lb., according to quality, Crimson, 1s. 3d. to 1s. 7½d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—2s. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£46 to £55 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5¾d. to 6¾d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—5s. 3d. per lb.

ZINC SULPHIDE.—1s. 1d. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, 80% B.P.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 4d. to 2s. 5d. per lb.

ACID, BENZOIC B.P.—2s. to 2s. 3d. per lb., according to quantity.

ACID, BORIC B.P.—Crystal, £43 per ton; Powder, £47 per ton. Carriage paid any station in Great Britain, in ton lots.

ACID, CAMPHORIC.—19s. to 21s. per lb.

ACID, CITRIC.—1s. 3¼d. per lb., less 5%.

ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.

ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.

ACID, SALICYLIC, B.P.—1s. 3½d. to 1s. 4½d. per lb. Technical.—1s. per lb.

ACID, TANNIC B.P.—2s. 9d. to 2s. 11d. per lb.

ACID, TARTARIC.—1s. 0¼d. per lb., less 5%.

AMIDOL.—9s. 6d. per lb., d/d.

ACETANILIDE.—1s. 7d. to 1s. 8d. per lb. for quantities.

AMIDOPYRIN.—11s. 6d. per lb.

AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity.

AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks.

ASPIRIN.—2s. 4d. to 2s. 5d. per lb. Good inquiry.

ATROPINE SULPHATE.—11s. per oz. for English make.

BARBITONE.—8s. 9d. per lb.

BENZONAPHTHOL.—3s. 3d. per lb. spot.

BISMUTH CARBONATE.—12s. 3d. to 14s. 3d. per lb.

BISMUTH CITRATE.—9s. 3d. to 11s. 3d. per lb.

BISMUTH SALICYLATE.—10s. to 12s. per lb.

BISMUTH SUBNITRATE.—10s. 6d. to 12s. 6d. per lb., all above bismuth salts, according to quantity.

BISMUTH NITRATE.—6s. 9d. per lb.

BISMUTH OXIDE.—13s. 9d. per lb.

BISMUTH SUBCHLORIDE.—11s. 9d. per lb.

BISMUTH SUBGALLATE.—9s. 9d. per lb.

BORAX B.P.—Crystal, £27 per ton; Powder, £28 per ton. Carriage paid any station in Great Britain, in ton lots.

BROMIDES.—Potassium, 1s. 9d. to 1s. 11d. per lb.; sodium, 2s. to 2s. 2d. per lb.; ammonium, 2s. 3d. to 2s. 9d. per lb., all spot.

CALCIUM LACTATE.—1s. 3½d. to 1s. 5d.

CHLORAL HYDRATE.—3s. 3d. to 3s. 6d. per lb., duty paid.

CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.

CREOSOTE CARBONATE.—6s. per lb.

FORMALDEHYDE.—£39 per ton, in barrels ex wharf.

GUAIACOL CARBONATE.—6s. 6d. to 7s. per lb.

HEXAMINE.—2s. 4d. to 2s. 6d. per lb.

HOMATROPINE HYDROBROMIDE.—30s. per oz.

HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.

HYDROGEN PEROXIDE (12 VOLS.).—1s. 8d. per gallon f.o.r. makers' works, naked.

HYDROQUINONE.—4s. per lb., in cwt. lots.

HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.

IRON AMMONIUM CITRATE B.P.—2s. 1d. to 2s. 4d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 2d. to 2s. 5d. per lb.

IRON PERCHLORIDE.—22s. per cwt., 112 lb. lots.

MAGNESIUM CARBONATE.—Light Commercial, £33 per ton net.

MAGNESIUM OXIDE.—Light Commercial, £67 10s. per ton, less 2½%; Heavy Commercial, £22 per ton, less 2½%; Heavy Pure, 2s. to 2s. 3d. per lb., according to quantity.

MENTHOL.—A.B.R. recrystallised B.P., 18s. 9d. net per lb.; Synthetic, 10s. 6d. to 12s. per lb., according to quantity; Liquid (95%), 12s. per lb.; Detached Cryst., 15s. 9d. per lb.

MERCURIALS.—Red Oxide, 6s. 5d. to 6s. 7d. per lb., levig., 6s. to 6s. 1d. per lb.; Corrosive Sublimate, Lump, 4s. 8d. to 4s. 10d. per lb., Powder, 4s. 2d. to 4s. 3d. per lb.; White Precipitate, 4s. 10d. to 5s. per lb., Powder, 5s. to 5s. 1d. per lb., Extra Fine, 5s. 1d. to 5s. 2d. per lb.; Calomel, 5s. 3d. to 5s. 5d. per lb.; Yellow Oxide, 5s. 10d. to 5s. 11d. per lb.; Persulph, B.P.C., 5s. 1d. to 5s. 2d. per lb.; Sulph. nig., 4s. 10d. to 4s. 11d. per lb.

METHYL SALICYLATE.—1s. 6d. per lb.

METHYL SULPHONAL.—15s. 6d. per lb.

METOL.—11s. per lb. British make.

PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.

PARALDEHYDE.—1s. 2d. to 1s. 4d. per lb.

PHENACETIN.—3s. 9d. to 4s. per lb.

PHENAZONE.—5s. 9d. to 6s. per lb.

PHENOLPHTHALEIN.—3s. 9d. to 4s. per lb.

POTASSIUM BITARTRATE 99/100%(Cream of Tartar).—81s. per cwt., less 2½% for ton lots.

POTASSIUM CITRATE.—1s. 11d. to 2s. 2d. per lb.

POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.

POTASSIUM IODIDE.—16s. 8d. to 17s. 5d. per lb., according to quantity.

POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.

POTASSIUM PERMANGANATE.—B.P. crystals, 6½d. per lb., spot.

QUININE SULPHATE.—2s. per oz., 1s. 8d. to 1s. 9d. per oz. in 100 oz. tins.

RESORCIN.—4s to 4s. 3d. per lb., spot.

SACCHARIN.—55s. per lb. Fair inquriy.

SALOL.—3s. per lb.

SODIUM BENZOATE, B.P.—1s. 10d. to 2s. 2d. per lb.

SODIUM CITRATE, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb. B.P.C., 1923—2s. to 2s. 2d. per lb. U.S.P., 1s. 11d. to 2s. 2d. per lb., according to quantity.

SODIUM FERROCYANIDE.—4d. per lb. carriage paid.

SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.

SODIUM NITROPRUSSIDE.—16s. per lb.

SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—80s. to 85s. per cwt., according to quantity.

SODIUM SALICYLATE.—Powder, 1s. 9d. to 1s. 10d. per lb. Crystal, 1s. 10d. to 1s. 11d. per lb.

SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.

SODIUM SULPHITE, ANHYDROUS, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.

SULPHONAL.—10s. 6d. per lb.

TARTAR EMETIC, B.P.—Crystal or Powder, 2s. to 2s. 2d. per lb.

THYMOL.—11s. 6d. to 13s. 9d. per lb., according to quantity.

Perfumery Chemicals

ACETOPHENONE.—10s. per lb.

AUBEPINE (EX ANETHOL).—12s. per lb.

AMYL ACETATE.—2s. per lb.

AMYL BUTYRATE.—5s. 6d. per lb.

AMYL SALICYLATE.—3s. per lb.

ANETHOL (M.P. 21/22° C.).—6s. per lb.

BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. 3d. per lb.

BENZYL ALCOHOL FREE FROM CHLORINE.—2s. 3d. per lb.

BENZALDEHYDE FREE FROM CHLORINE.—2s. 9d. per lb.

BENZYL BENZOATE.—2s. 6d. per lb.

CINNAMIC ALDEHYDE NATURAL.—18s. per lb.

COUMARIN.—11s. 6d. per lb.

CITRONELLOL.—15s. per lb.

CITRAL.—9s. 6d. per lb.

ETHYL CINNAMATE.—10s. per lb.

ETHYL PHTHALATE.—3s. per lb.

EUGENOL.—10s. per lb.

GERANIOL (PALMAROSA).—19s. per lb.

GERANIOL.—6s. 3d. to 10s. 6d. per lb.

HELIOTROPINE.—4s. 10d. per lb.

ISO EUGENOL.—13s. 6d. per lb.

LINALOL.—Ex Shui Oil, 12s. per lb. Ex Bois de Rose, 17s. per lb.

LINALYL ACETATE.—Ex Shui Oil, 15s. per lb. Ex Bois de Rose, 18s. 6d. per lb.

METHYL ANTHRANILATE.—9s. 3d. per lb.

METHYL BENZOATE.—5s. per lb.

MUSK KETONE.—36s. per lb.

MUSK XYLOL.—8s. 6d. per lb.

NEROLIN.—3s. 9d. per lb.

PHENYL ETHYL ACETATE.—12s. per lb.

PHENYL ETHYL ALCOHOL.—10s. per lb.

RHODINOL.—28s. 6d. per lb.

SAFROL.—1s. 6d. per lb.

TERPINEOL.—1s. 6d. per lb.

VANILLIN.—18s. 6d. to 20s. per lb.

Essential Oils

ALMOND OIL.—11s. 6d. per lb.

ANISE OIL.—3s. 8d. per lb.

BERGAMOT OIL.—36s. 9d. per lb.

BOURBON GERANIUM OIL.—11s. 6d. per lb.

CAMPHOR OIL.—67s. 6d. per cwt.

CANANGA OIL, JAVA.—20s. per lb.

CINNAMON OIL, LEAF.—5½d. per oz.

CASSIA OIL, 80/85%.—9s. 3d. per lb.

CITRONELLA OIL.—Java, 85/90%, 2s. 6d. per lb. Ceylon, pure, 2s. 1d. per lb.

CLOVE OIL.—6s. 9d. per lb.

EUCALYPTUS OIL, 70/75%.—2s. per lb.

LAVENDER OIL.—French 38/40%, Esters, 18s. 6d. per lb.

LEMON OIL.—9s. 6d. per lb.

LEMONGRASS OIL.—4s. 6d. per lb.

ORANGE OIL, SWEET.—10s. 3d. per lb.

OTTO OF ROSE OIL.—Bulgarian, 70s. per oz. Anatolian, 30s. per oz.

PALMA ROSA OIL.—9s. 9d. per lb.

PEPPERMINT OIL.—Wayne County, 35s. per lb. Japanese, 10s. 3d. per lb.

PETITGRAIN OIL.—8s. 3d. per lb.

SANDALWOOD OIL.—Mysore, 26s. per lb. Australian, 17s. 3d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

London, November 10, 1926.

THERE is little change to report since our last week's indication of the market conditions. Demand remains fair, but uncertainty still continues with regard to the articles liable to be included under the new Key Industries Act. The first list has since been published but very few products are mentioned.

Prices for most products are very steady but the export trade still leaves a great deal to be desired.

General Chemicals

ACETONE has been in slightly better demand but price remains weak at £65 to £66 per ton.
ACID ACETIC.—Price unchanged.
ACID CITRIC.—In plentiful supply and price about 1s. 2¼d. per lb.
ACID FORMIC continues steady at last quoted figures.
ACID LACTIC remains firm with demand fair at £45 per ton for 50% by weight.
ACID OXALIC has been in better demand. Price is without change.
ACID TARTARIC.—In poor demand with price at about 11½d. per lb.
ALUMINA SULPHATE.—In good demand at about £5 10s. for 17/18%.
AMMONIUM CHLORIDE.—Still in poor demand, price nominally £18 10s. per ton.
BARIUM CHLORIDE remains unchanged at £9 10s. per ton ex store.
COPPER SULPHATE has advanced in price and is quoted at £23 10s. to £24 per ton.
CREAM OF TARTAR remains unchanged at £73 per ton.
EPSOM SALTS.—Price is firm at £5 10s. per ton.
FORMALDEHYDE is in good request and in short supply at £42 per ton.
LEAD ACETATE remains unchanged at £44 to £45 per ton for white and £43 per ton for brown.
METHYL ACETONE remains firm at £55 to £57 per ton for high grade material.
METHYL ALCOHOL is featureless.
POTASSIUM CHLORATE.—Demand is steady at 3½d. per lb.
POTASSIUM PERMANGANATE is in slow demand and is quoted at 7½d. per lb. for B.P. grade.
POTASSIUM PRUSSIATE remains very firm and supplies are short. It is quoted at 7¼d. to 7½d. per lb.
SODIUM ACETATE is slightly easier at £19 15s. to £20 per ton.
SODIUM BICHROMATE moves satisfactorily and British makers' prices are unchanged.
SODIUM CHLORATE is firmer at 3¼d. per lb.
SODIUM NITRITE.—A fair demand is quoted at £20 per ton.
SODIUM PHOSPHATE is in better request at £13 to £13 5s. per ton.
SODIUM PRUSSIATE is again higher and supplies are short. It is quoted at 4½d. to 4¾d. per lb.
SODIUM SULPHIDE is higher in price.
ZINC SULPHATE.—In steady demand at about £13 per ton.

Coal Tar Products

Owing to the continuance of the coal strike, prices generally for coal tar products remain on a high level, and products are difficult to obtain.

90's BENZOL is firm at 2s. 2d. per gallon on rails, while the motor quality is quoted at 2s. 1½d. per gallon on rails.
PURE BENZOL is worth anything from 4s. to 4s. 6d. per gallon.
CREOSOTE OIL is worth about 8d. per gallon on rails at works in the country, while the price in London is 9d. to 9¼d. per gallon at works.
CRESYLIC ACID is unchanged at 2s. 2d. per gallon on rails for the pale quality 97/99%, while the dark quality 95/97% is worth about 2s. 1d. per gallon.
SOLVENT NAPHTHA is difficult to obtain, and is worth about 1s. 10d. per gallon on rails.
HEAVY NAPHTHA is quoted at 1s. 6d. to 1s. 7d. per gallon on rails.
NAPHTHALENES are scarce, the 76/78 quality being worth about £8 10s. to £9 per ton, while the 74/76 quality is worth about £8 to £8 5s. per ton at makers' works.
PITCH is unchanged at £9 to £10 per ton f.o.b. U.K. port.

Latest Oil Prices

LONDON.—LINSEED OIL quiet and 2s. 6d. to 7s. 6d. lower. Spot, £31 5s., ex mill; Nov. to April, £30 5s.; May-Aug., £39 17s. 6d. RAPE OIL quiet. Crude, extracted, £44, ex wharf; technical, refined, £46. COTTON OIL slow at 10s. decline. Refined common edible, £39 10s.; Egyptian crude, £33 10s.; deodorised, £41 10s. TURPENTINE steady at 6d. per cwt. advance. American, spot, 62s. 6d.; Nov.-Dec., 62s. 9d.; Jan.-April and May-June, 64s. 3d.

HULL.—LINSEED OIL.—Spot and Nov.-Dec., £30 15s.; Jan.-April, £30 12s. 6d.; May-Aug., £30 2s. 6d. COTTON OIL.—Bombay, crude, £32; Egyptian, crude, £33; edible refined, £37 10s.; technical, £36 10s. PALM KERNEL OIL.—Crushed, naked, 5½, £41. GROUNDNUT OIL.—Crushed-extracted, £43; deodorised, £47. SOYA OIL.—Extracted and crushed, £35; deodorised, £38 10s. RAPE OIL.—Crude-extracted, £46; refined, £48 per ton, net cash terms, ex mill. CASTOR OIL and COD OIL unchanged.

Calcium Cyanamide

THE demand for this fertiliser at the present time chiefly relates to its use for autumn application to grassland. As previously announced, the price for calcium cyanamide to farmers for November delivery is £9 8s. per ton for 4 ton lots, carriage paid to any railway station in Great Britain.

Nitrogen Products

Export.—During the past week the sulphate of ammonia position has been unchanged. As the present heavy freights operating for transatlantic traffic will tend to raise the price of sulphate of ammonia to European consumers, it is expected that the sulphate market may become firmer. It is understood that nitrate of lime has already made inroads into the consuming centres of nitrate of soda, and it is expected that there will be considerable substitution of sulphate as well. The demand from consumers will not materialise until the year has turned. At present producers are supplying merchants' orders in anticipation of this demand. Prices f.o.b. U.K. port remain on the basis of £11 5s. per ton in single bags.

Home.—The increase of 5s. per ton in the home prices has not had any appreciable effect on the demand. In some districts supplies are somewhat short, and consumers who utilise sulphate for mixing purposes have been operating with a minimum of reserve. It is expected that there will be no further alterations in the home price.

Nitrate of Soda.—Sales of nitrate have been proceeding more satisfactorily. Most of these sales have been ex stocks in Europe, Egypt and U.S.A., buyers being a little keener on account of the freight difficulties. Total sales by the Producers' Association for the year have been reduced considerably below the million tons less than last year which was reported recently.

Meeting of Erinoid, Ltd.

THE annual general meeting of Erinoid, Ltd., was held on Wednesday, November 3, in London. Mr. Andrew Binnie (the chairman), in the course of his speech, said that shareholders who had followed the trend of events would not be surprised that they had not maintained the record of last year. Towards the close of 1925, sales fell away sharply. It appeared that the acute financial crisis in Germany brought bankrupt stocks of manufactured goods into this country, to the immediate detriment of those home industries which were their chief customers. Next came the rapid fall in the franc, which enabled French manufacturers to sell in this country, for sterling, at low prices. The foreigner was quite satisfied to sell for sterling in the English market at his cost of production, plus a small percentage. The additional output kept down his cost of production at home and, therefore, gave him a larger profit in his protected home market. They could not retaliate effectively. The Erinoid Co. of America had now got under way, and they awaited further developments with confidence. The trade outlook at the moment was naturally uncertain, but the fine quality of their material was now recognised everywhere, and there was no doubt that they would get their full share in the revival of trade at home when peace in industry had been restored.

The report and accounts were unanimously adopted, and a final dividend of 6 per cent., less income tax, making 10 per cent. for the year, was approved.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, November 10, 1926.

BUSINESS in the heavy chemical market remains quiet, and although there is a certain amount of inquiry quantities asked for are small. Notwithstanding the poor demand prices remain steady.

Industrial Chemicals

ACID ACETIC.—98/100%, £55 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure, £37 to £38 per ton; 80% technical, £37 to £38 per ton, c.i.f. U.K. ports.

ACID BORIC.—Crystal, granulated or small flakes, £37 per ton; powdered, £49 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Still in good demand and price now about 6½d. per lb., delivered or f.o.b. U.K. ports.

ACID CITRIC B.P. CRYSTALS.—Now quoted 1s. 3d. per lb., less 5% ex store. On offer from the Continent at 1s. 2¾d. per lb., less 5%, ex wharf.

ACID HYDROCHLORIC.—In little demand. Price 6s. 6d. per carboy, ex works.

ACID NITRIC, 80°.—Usual steady demand, and price unchanged at £23 5s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—Now quoted 3⅞d. per lb., ex store. Offered for prompt shipment from the Continent at 3⅜d. per lb., c.i.f. U.K. ports, duty paid.

ACID SULPHURIC.—144°, £3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—Quoted 11⅝d. per lb., less 5%, ex store. On offer for early delivery at 11¼d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Spot material on offer at about £6 per ton, ex store. Quoted £5 8s. 6d. per ton, c.i.f. U.K. ports. Prompt shipment from the Continent.

ALUM, LUMP POTASH.—Spot material unchanged at £9 per ton, ex store. Offered from the Continent at about £7 15s. per ton, c.i.f. U.K. port. Crystal powdered quality £7 10s. per ton, c.i.f. U.K. ports. Spot material about £8 5s. per ton, ex store.

AMMONIA ANHYDROUS.—Imported material selling at about 11¼d. to 11½d. per lb., ex wharf, containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered of f.o.b. U.K. ports.

AMMONIA LIQUID 880°.—Unchanged at about 2½d. to 3d. per lb., delivered, according to quantity.

AMMONIA MURIATE.—Grey galvanisers crystals of British manufacture quoted £23 10s. to £25 10s. per ton, ex station. Continental on offer at about £21 10s. per ton, c.i.f. U.K. ports. Fine white crystals of continental manufacture quoted £18 5s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED CORNISH.—Spot material quoted £19 5s. per ton, ex store. On offer for prompt dispatch from mines at about £18 5s. per ton, ex wharf.

BARIUM CARBONATE, 98/100%.—White powdered quality quoted £6 15s. per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Quoted £8 15s. per ton, c.i.f. U.K. ports, prompt shipment from the Continent. Spot material available at about £9 10s. per ton, ex store.

BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—English material unchanged at £9 10s. per ton, ex station. Contracts, 20s. per ton less. Continental now quoted £7 15s. per ton, c.i.f. U.K. ports.

BORAX.—Granulated, £22 10s. per ton; crystals, £23 per ton; powdered, £24 per ton, carriage paid U.K. stations.

CALCIUM, CHLORIDE.—English manufacturer's price unchanged at £5 12s. 6d. to £5 17s. 6d. per ton, ex station. Continental now quoted £3 15s. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works, or at £4 2s. 6d. per ton, f.o.b. U.K. ports, for export.

COPPER SULPHATE.—Continental material on offer at about £22 per ton, ex wharf. Moderate inquiry for export and price of English material about £23 5s. per ton, f.o.b. U.K. ports.

FORMALDEHYDE, 40%.—Spot material on offer at £40 per ton, ex store. Quoted £38 per ton, c.i.f. U.K. ports, prompt shipment.

GLAUBER SALTS.—English material quoted £4 per ton, ex store or station. Continental on offer at about £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material quoted £37 10s. per ton, ex store.

LEAD, WHITE.—Quoted £38 per ton, ex store.

LEAD, ACETATE.—White crystals quoted £44 per ton, c.i.f. U.K. ports. Brown about £40 10s. per ton, c.i.f. U.K. ports.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

POTASH CAUSTIC, 88/92%.—Syndicate prices vary from £25 10s. to £28 15s. per ton, c.i.f. U.K. ports, according to quantity and destination. Spot material available at about £29 per ton.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.

POTASSIUM CARBONATE, 96/98%.—Quoted £25 5s. per ton, ex wharf, early delivery. Spot material on offer at £26 10s. per ton, ex store. 90/94% quality quoted £22 5s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 98/100%.—Powdered quality available at about £25 5s. per ton, c.i.f. U.K. ports. Crystal, £2 per ton extra.

POTASSIUM NITRATE (SALTPETRE).—Quoted £22 per ton, c.i.f. U.K. ports. Prompt shipment from the Continent. Spot material about £24 per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—On offer at 7d. per lb., ex store, spot delivery. Quoted 6¾d. per lb., ex wharf, early shipment.

POTASSIUM PRUSSIATE, YELLOW.—In little demand. Quoted 6⅞d. per lb., ex store, or 6¾d. per lb., ex wharf, early delivery.

SODA CAUSTIC.—76/77%, at £17 10s. per ton; 70/72%, £16 2s. 6d. per ton. Broken 60%, £16 12s. 6d. per ton; powdered, 98/99%, £20 17s. 6d. per ton. All carriage paid U.K. stations, spot delivery. Contracts 20s. per ton less.

SODIUM ACETATE.—English material on offer at £22 per ton, ex station. Continental quoted £18 15s. per ton, c.i.f. U.K. ports.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—English price unchanged at 3½d. per lb., delivered.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality, £1 7s. 6d. per ton more. Alkali 59%, £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 per ton, ex station, minimum 4 ton lots. Pea crystals, photographic quality, £14 10s. per ton, ex store, spot delivery. Continental commercial crystals quoted £8 15s. per ton, ex store.

SODIUM NITRATE, 100%.—Quoted £20 17s. 6d. per ton, ex store, spot delivery.

SODIUM PRUSSIATE (YELLOW).—Unchanged at 4d. per lb., ex store, spot delivery. On offer from the Continent at a fraction less.

SODIUM SULPHATE (SALTCAKE).—Price for home consumption, £3 10s. per ton, ex works. Good inquiry for export and higher prices obtainable.

SODIUM SULPHIDE, 60/62%.—Solid, £13 5s. per ton; broken, £14 5s. per ton; flake, £15 5s. per ton; crystals, 31/34%, £8 12s. 3d. per ton. All delivered buyers' works U.K. minimum 5 ton lots, with slight reduction for contracts. 60/62% solid quality offered from the Continent at about £8 15s. per ton, c.i.f. U.K. ports. Broken quality, 15s. per ton more. Crystals 30/32%, about £6 10s. per ton, c.i.f. U.K. ports.

SULPHUR.—Flowers, £11 15s. per ton; roll, £10 10s. per ton; rock, £10 10s. per ton; floristella, £10 per ton; ground American, £9 5s. per ton; ex store, spot delivery. Prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton f.o.b. U.K. ports. 98/100% solid on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports. Powdered 20s. per ton extra.

ZINC SULPHATE.—Continental make on offer at about £11 per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Coal Tar Intermediates

SULPHANILIC ACID.—9d. per lb. per 100%. Some home inquiries.

ALPHA NAPHTHYLAMINE.—1s. 3d. per lb. Small home inquiries.

BENZOIC ACID.—1s. 8d. per lb. Some home inquiries.

THE PRODUCTION OF BRITISH DYESTUFFS in 1925 is shown by a statement received by the Board of Trade from the Dyestuffs Industry Development Committee. The statement was prepared from figures furnished voluntarily by the principal British dye makers: the combined output of the firms which did not make returns was relatively negligible. The total production was 32,603,402 lb., this including all classes and colours. The highest production in a single class is shown by vat colours (including indigo) of which the production was 7,295,769 lb., followed by chrome and mordant colours (including alizarine) with 6,256,276 lb.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, November 11, 1926.

So far as home consumption is concerned the major portion of the demand on the Manchester chemical market during the past week has been of a hand-to-mouth character and buyers seem content, as they have been almost throughout the period of the coal strike, barely to fill prompt or early needs without, except in a few special cases, worrying about the future. There is only a quiet trade being done on foreign account, and inquiries from export markets during the past few days have not been numerous.

Heavy Chemicals

Bicarbonate of soda is well held at recent values and about £10 10s. per ton is still being asked for this material, although recent buying operations have been only of limited extent. There is a firm note about the market for bichromate of soda and offers are now in the region of 3½d. per lb.; current demand has been moderate. Although not actually changed in price saltcake has rather a weak tendency at about £3 per ton, and the demand for this remains slow. More or less the same conditions obtain in regard to glauber salts, which are offered at about £3 15s. per ton. Prussiate of soda continues firm and a quietly steady demand is being met with, offers now being made on the basis of round 4⅛d. per lb. Phosphate of soda maintains its recent steadier feeling, with quotations ranging from £12 15s. to £13 per ton, although sales are only moderate. Hyposulphite of soda continues rather slow, with photographic material on offer at about £15 10s. per ton and commercial crystals at £9 5s. There is a quiet demand for bleaching powder at unchanged values, about £8 10s. per ton still being asked. A steady trade continues to be done in caustic soda at from £17 10s. per ton for 76 per cent. quality down to £15 2s. 6d. for 60 per cent. Chlorate of soda meets with a restricted demand and is on the easy side at about 3¼d. per lb. Alkali keeps firm at £6 15s. per ton for 58 per cent. material, and a fair demand has been met with during the past few days. Nitrite of soda is steady and is receiving some attention at about £19 5s. per ton. Sulphide of soda remains quiet and easy at £9 15s. per ton for 60-65 per cent. concentrated solid and about £7 for commercial quality. Caustic potash is well held and from £27 to £27 10s. per ton is now being asked; inquiry for this is of moderate extent. Carbonate of potash is quite steady at £26 to £26 5s. per ton. There is only a limited business being done in permanganate of potash and rather lower rates are being quoted in some instances; for B.P. material current values range from 6½d. to 6¾d. per lb., with commercial on offer at about 5d. Yellow prussiate of potash is fully maintained at 6¾d. per lb. Chlorate of potash continues to be quoted at about 3⅝d. per lb., but inquiry for this material is not particularly brisk. There is a moderate demand reported for bichromate of potash at steady values, round 4d. per lb. still being asked.

With available parcels of arsenic still on the short side, firmness is a feature of the market for arsenic, up to £16 10s. per ton at the mines being quoted for white powdered, Cornish makes. Sulphate of copper is in quiet demand on export account at about £22 15s. per ton, f.o.b., although rather variable prices are being asked. Nitrate of lead is in fair request at £40 to £41 per ton. The acetates of lead are receiving only moderate attention and there is a tendency to shade figures, about £45 per ton being asked for the white material and £40 10s. for brown. Grey acetate of lime is being offered at £17 per ton, and brown at round £8, demand being quiet.

Acids and Tar Products

Citric acid is in rather limited request at 1s. 3¼d. to 1s. 3½d. per lb. Tartaric acid is steady and is receiving more attention at round 11½d. per lb. There is a quiet demand for acetic acid and values are held at £37 per ton for 80 per cent. commercial quality and £66 for glacial. Oxalic acid is on the quiet side but prices are steady at about 3⅝d. per lb.

Round £9 per ton f.o.b., is being quoted for pitch on the East Coast, but business is limited by the prevailing shortage. Sales of carbolic acid crystals are being made at 7¼d. to 7½d. per lb. Creosote oil continues firm at 9d. per gallon, but there has been little alteration in solvent naphtha, supplies of which can be bought at about 1s. 11d. per gallon.

Free Lime in Cement

Methods of Determination

The Department of Scientific and Industrial Research (through the Building Research Station) have just issued Building Research Technical Paper, No. 4, *The Determination of Free Lime in Hydraulic Cement*, by F. L. Brady, M.Sc., A.I.C., and F. J. McConnell (pp. 13, 6d.). The paper records the results obtained by four principal methods, although many others were examined. In order that general applicability might be considered, the following series of cements was used in the various determinations: Portland cement; two British Portland-blast furnace cements (60 per cent. of granulated blast furnace slag with 40 per cent. of Portland cement; slag cement (a French cold-process slag cement); and a high alumina cement (French, quick-hardening).

The four methods of determination examined in detail were: wet methods, determination by phenol and by sugar, both of which dissolve lime; dry methods, Passow's test and the thermal test. Passow's method depends on treatment of the cement with dry ammonium carbonate, heating, and subsequent determination of the percentage of carbon dioxide present. The thermal method depends upon the fact that when cements are heated to a suitable temperature the calcium hydroxide contained is converted to calcium oxide. It is then possible to estimate the calcium oxide by mixing the cement with water and observing the rise in temperature produced. A method has been worked out which is very rapid and which provides reliable figures. This method is particularly valuable in the case of unset or aerated cements, for judging the freshness or otherwise of a sample, and in any cases where a small percentage of lime is involved. It was originally evolved in connection with work on the fire resistance of concrete.

In the summary of results, the authors state that from the work discussed it appears that the "dry" methods of testing provide useful information. There is no method known which is entirely free from objection. Though it is clear from microscopical examination and other evidence that free calcium hydroxide does exist in many set cements, the precise chemical and physical condition of the whole of the lime, which is loosely referred to in their paper as "free lime," is open to some discussion. The tests, however, afford valuable, and otherwise unobtainable, evidence on the condition and probable behaviour of set and unset cements. One wet method, using sugar solutions, is also of value especially for set cements when only small samples of a material are obtainable.

Unusual Explosion at Birmingham

A remarkable accident occurred at the works of Thomas Ward, Ltd., metal merchants, of Belmont Row, Birmingham, on Monday. While being heated, a piece of gun-metal burst and flew out through the roof of the works, leaving a hole over a stairway. The metal fell in Lawley Street, nearly a quarter of a mile away. Fortunately, although several employees were standing near the metal, no one was seriously hurt. Two men, William Organ, of Ladywood, and Francis Harrison, of Bordesley, who were taken to the General Hospital, were allowed to go home after treatment. Some windows were smashed and a door was damaged by the shock of the explosion. It was stated that the mishap was due to the fact that some water had been sealed up in a cavity in the piece of gun-metal which was being heated. The water, becoming heated in the cavity, expanded, and this caused the piece of metal to burst. The force of the explosion is shown by the distance through which the metal, which weighed four pounds, was hurled.

The Institute of Chemistry

The annual general meeting of the London and South-Eastern Counties Section of the Institute of Chemistry will be held at the offices of the Institute, 30, Russell Square, London, W.C.1, on Wednesday, November 17, 1926, at 8 p.m. The business will include the election of officers and committee for session 1926-27. On the conclusion of the official business an informal smoking concert will be held. Ladies are specially invited. Light refreshments will be served during the evening. An informal dinner, at 3s. 6d. per head, has been arranged at 6.30 p.m., in the grill room at the Bedford Head Hotel, Tottenham Court Road (entrance in Bayley Street).

Company News

NITRATE PRODUCERS' STEAMSHIP CO.—An interim dividend of 7½ per cent. per annum, free of income tax, is announced for the half year.

"SANITAS" CO.—The directors announce an interim dividend at the rate of 9 per cent. per annum on the preference shares, payable on December 1.

ALLEN-LIVERSIDGE.—A dividend at the rate of 6½ per cent. per annum, less tax, for the six months ended October 31, 1926, has been declared on the preference shares.

FULLER'S EARTH UNION.—A dividend of 5 per cent. per annum, less income tax, has been declared on the ordinary shares for the half year, payable on November 16.

PAN DE AZUCAR NITRATE CO.—The full report for the year ended June 30, 1926, states that the trading profit and sundry credits amount to £35,598, from which have to be deducted depreciation, Chilean income-tax, London expenses, and other charges £13,588, leaving a net profit of £22,010. The balance brought forward is £8,457, making £30,467. The board recommend a final dividend of 10 per cent., less income-tax, making 15 per cent. for the year, leaving to be carried forward £17,267. The annual meeting will be held at Winchester House, London, E.C., on November 17, at 12 noon.

LIVERPOOL NITRATE CO.—For the year ended June 30 last, the report states that the balance of profit and loss from previous account was £47,615, from which is deducted the final dividend paid on November 28, 1925, of 1s. 6d. per share, less income-tax, £20,672, leaving £26,943. To this is added the profit for the past year of £14,598, making a total of £41,541. After allowing for the interim dividend paid on May 25, 1926, of 1s. 6d. per share, less income-tax, there remains £20,541, which the directors propose to carry forward. The annual meeting will be held at Liverpool on November 18, at 12 noon.

EASTERN CHEMICAL CO.—The report for the year ended March 31, 1926, states that the result of working, after writing off cost of renewals and repairs on plant and buildings, was a loss of £3,587. The replacement value of buildings, plant, and machinery being considerably higher than original cost, the directors do not consider it necessary to make any addition to the depreciation reserve account this year. The severe competition and general trade depression referred to in the last report have continued, but considerable economies previously referred to have brought down the cost of manufacture so materially that the loss on sales of products shown in the profit and loss account on March 31, 1925 (£958), has been converted into a profit of £1,455. The annual meeting will be held at 13, Fenchurch Avenue, London, E.C., on November 17, at 3 p.m.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

PHARMACEUTICAL CHEMICALS AND DRUGS, ETC.—The Dutch Ministry of War, Amsterdam, are inviting tenders for the supply of medical supplies, consisting of miscellaneous pharmaceutical chemicals and drugs, etc. Tenders will be received in Amsterdam up till 1 p.m. on November 30. Local representation is essential. (Reference C.X. 2112.)

NON-FERROUS METALS.—A firm of agents established in Bucharest desires to obtain the representation of British manufacturers of non-ferrous metals. (Reference No. 575.)

FINE CHEMICALS, HEAVY CHEMICALS, CRUDE DRUGS, ETC.—The Commercial Secretary at Alexandria reports that the Department of Public Health, Cairo, invites tenders, to be received by January 15, 1927, for the supply of the following: crude drugs and heavy chemicals, fine chemical products, galenicals and packed articles, etc. Firms interested in the supply of such goods manufactured in the United Kingdom can obtain further particulars upon application to the Department of Overseas Trade, Room 52. (Reference B.X. 3015.)

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us by Mr. H. T. P. Gee, Patent and Trade Mark Agent, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to December 3, 1926.

"CYCLOSAN."

471,934. For chemical substances prepared for use in medicine and pharmacy. Class 3. May and Baker, Ltd., Garden Wharf, Church Road, Battersea, London, S.W.11; manufacturing chemists. July 30, 1926.

"INTELLOGOL."

473,163. For chemical substances prepared for use in medicine and pharmacy. Class 3. August William Vesterling, 107, Castle Street, Battersea Park, London, S.W.11; manufacturer. September 16, 1926. (To be Associated, Sect. 24.)

"AUREMETINE."

471,016. For chemical substances prepared for use in medicine and pharmacy. Class 3. William Harrison Martindale, trading as W. Martindale, 10, New Cavendish Street, London, W.1; manufacturing chemist. June 30, 1926.

Tariff Changes

AUSTRIA.—The Austrian *Bundesgesetzblatt* for October 20 publishes the text of a Protocol of July 7, 1926, to the Commercial Treaty of December 14, 1923, between Austria and the Belgium-Luxemburg Economic Union. The Protocol has been enforced by Austria as from October 16, pending ratification. Belgium renounces the right to claim the duty-free admission of superphosphates into Austria granted to her by the 1923 Treaty, but secures the following reduced rates of Austrian Customs duties; white arsenic (arsenious anhydride), in packets of 5 kg. or more, 6 per cent. *ad valorem*, in packets of less than 5 kg., 10 per cent. *ad valorem*; zinc white, 5 gold kroner per 100 kg.

BELGIUM.—A Decree, dated October 26, and effective as from November 2, modifies the "coefficients" applicable to the Customs duties on chemical and pharmaceutical products (class V, 415), the "coefficient" being raised from 6 to 8.

JAPAN.—An ordinance of the Japanese Ministry of Finance, coming into force as from September 8, amends the list of receptacles and containers which may be imported into Japan without payment of import duty when they are destined for use as containers of goods for export. The list includes: bottles used as containers of acetic acid; jars and cans used as containers of sulphuric, hydrochloric, nitric or acetic acids; iron cylinders used as containers of compressed gases.

POLAND.—An Order of September 24, effective as from October 13, provides that the Customs duty on electrodes imported into Poland for use in the manufacture of calcium carbide, calcium cyanamide and ammonium nitrate for export will be refunded to the manufacturer according to the following scale: calcium carbide, 0·50 zl. per 100 kg.; calcium cyanamide, 0·40 zl. per 100 kg.; ammonium nitrate, 0·90 zl. per 100 kg.

Soap Merchant's Bankruptcy

THE receiving order in the matter of Percy Briggs, trading as Charles Greaves, 217, Chester Road, Manchester, soap merchant, was made on a creditor's petition. The statement of affairs showed liabilities of £2,899 13s., while the assets were estimated at £696 3s. 8d., from which preferential claims of £9 12s. 9d. had to be deducted, leaving net assets of £686 10s. 11d., or a deficiency of £2,213 2s. 1d. The debtor attributed his failure to bad trade and loss through speculating in linseed oil futures. The debtor stated that he first became aware of his position in March, 1925, and he had contracted debts since then in the expectation of an improvement in trade. Among the creditors are: Brunner, Mond and Co., Ltd., £51; The United Alkali Co., Ltd., £82.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgment

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

HORSFORTH DYEING AND FINISHING CO., LTD. Hawksworth Road Dyeworks, Horsforth. (C.C., 13/11/26.) £11 8s. 2d. October 2, and £20 5s. 6d. October 6.

Mortgages and Charges

*[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]*

FLINN AND SON, LTD., Fishersgate, dyers. (M., 13/11/26.) Registered October 29, £700 charge, to F. F. Flinn, Carisbrooke, Preston Road, Brighton, and others; charged on 60, London Road, Southborough. *£21,350. March 31, 1926.

SOUTH WALES SILICA CO., LTD., Cardiff. (M., 13/11/26.) Registered October 30, £1,400 2nd debentures, to A. M. Ingledew, 4, Mount Stuart Square, Cardiff, solicitor, and others; general charge (subject to 1st mortgage.) *£2,079 16s. 6d. December 15, 1925.

SQUIRE AND CO., BIRMINGHAM, LTD, chemists. (M., 13/11/26.) Registered October 29, £800 mortgage, to W. M. Bain, 62, Cambridge Road, Kings Heath, cashier, and others; charged on property in Lichfield Road, Mere Green, Sutton Coldfield. *£4,420. July 7, 1926.

Satisfaction

PRITCHARD AND CONSTANCE, LTD., London, S.W., chemical manufacturers. (M.S., 13/11/26.) Satisfaction registered October 28, £250, registered February 17, 1916.

London Gazette, &c.

Companies Winding Up Voluntarily

AZO SOAP CO., LTD. (C.W.U.V., 13/11/26.) By Special Resolution, October 5, duly confirmed. N. L. Kropf, 4, Fenchurch Avenue, London, E.C.3, chartered accountant, appointed liquidator.

SULPHATE OF AMMONIA EXPORT TRADERS, LTD. (C.W.U.V., 13/11/26.) By special resolution, October 5, confirmed October 22. G. A. Black appointed liquidator.

SYNTHETIC CHEMICALS, LTD. (C.W.U.V., 13/11/26.) By Special Resolution, October 11, confirmed October 25. J. M. Sibbald, chartered accountant, Westminster Bank Chambers, 21, Corn Market, Derby, appointed liquidator. Meeting of creditors at the offices of the liquidator, Monday, November 15, at 3 p.m. (All creditors have been or will be paid in full.)

Notice of Intended Dividend

ROTH, James Bertram, trading as J. B. ROTH AND CO., at 21, Cannon Street, Manchester, chemical and colour merchant. Last day for receiving proofs, November 20. Trustee, J. G. Gibson, Byrom Street, Manchester, Senior Official Receiver.

New Companies Registered

GRANCRETA CO., LTD., Arundel Chambers, 10, St. Paul's Street, Leeds. Registered November 1. Nom. capital, £2,000 in £1 shares (1,000 6 per cent. cumulative preference and 1,000 ordinary). To carry on the business of manufacturers of, agents for and dealers in chemical fertilisers, manures, etc.

WILLIAM GUTHRIE AND CO. (PARKHEAD), LTD., 104, Quarryknowe Street, Parkhead, Glasgow. Registered in Edinburgh November 5. Nom. capital, £5,000 in £1 shares. To acquire the business of oil refiners, etc., now carried on by William Guthrie and Co., Quarryknowe Street, Parkhead, Glasgow. Directors: W. Guthrie, Mayfield, Burnside, Rutherglen, P. Latta, junr., and J. Jack, Westercraigs, Dennistoun, Glasgow, oil and grease manufacturer.

McMILLANS (CHEMISTS), LTD., 833, Woolwich Road, Charlton, S.E.7. Registered November 6. Nom. capital, £100 in £1 shares. Manufacturing and dispensing chemists, druggists, drysalters, oil and colourmen and distillers, etc. Directors: J. McMillan, 11, Ridley Park, Forest Gate, London, E.7, and Mrs. E. E. McMillan.

NEW SOAPS, LTD. Registered November 6. Nom. capital, £1,000 in £1 shares. Soap manufacturers, producers, refiners, storers, transporters, and dealers in all kinds of vegetable, animal, and mineral oils, chemists, druggists, oil and colourmen, etc. Director: J. W. Bevan, "Cartref Melus," Llantarnam, near Newport, Mon.

Confiscated Works: Polish Action

Refusal to Accept International Court's Verdict

IN 1920, the Polish Government took possession of large chemical works at Chorzow, in Polish Upper Silesia, holding that they were German State property, and as such, fell to Poland under the Armistice Convention, the Treaty of Peace, and the Proposal of Spa. The works were sold by the German Government to the Bayerische Company in 1915, and in 1919 another sale took place to a German Upper Silesia company. The Poles claimed that these transactions were an alienation of property to which they were entitled. After long discussion, the question reached The Hague Tribunal—the Permanent Court of International Justice—in May of this year. It came before seven judges, three deputy judges, and two national judges. The conclusion of the Court was that the works were the property of German nationals, as shareholders in the Upper Silesian company; that the sale could not be regarded as "null and void" under the Treaty of Versailles, nor "contrary to the principles of good faith" on the part of the Reich. Poland, the Court held, should have respected the rights of the companies concerned, and its action was contrary to the Geneva Convention. The judgment stated that there was no instrument of international law which could be adduced to prevent the application of the Geneva Convention to the rights of the Upper Silesian company in respect of the Chorzow factory. Lord Finlay, one of the judges, after a second examination, endorsed the conclusions of the Court. Count Rostworowski, the Polish national judge, disagreed with the verdict. The legal course for the Polish Government was to accept the judgment against it and liquidate the property and pay a fair price for it. But Poland refuses to give up possession and thus defies The Hague Tribunal. The problem will have to be dealt with by the League of Nations.

Safeguarding of Industries

Committee on Table-ware of Translucent Pottery

THE Committee appointed to report upon an application from the British Pottery Manufacturers' Federation, for the imposition of an import duty on table-ware of translucent pottery, will hold their first public meeting on Monday, November 15, 1926, at 11 a.m. in King's Bench Court No. 1, Royal Courts of Justice, Strand, W.C., when the case for the applicants will be opened. A further meeting will be held at the same place on the following day, November 16, at 10.30 a.m.

Government Contracts

GOVERNMENT contracts let by the Crown Agent for the Colonies during September included the following: "Celotex"—Celotex, Ltd., London. Cement—Cement Marketing Co., Ltd., London; T. Beynon and Co., Ltd., London. Corrosive sublimate—May and Baker, Ltd., London. Laboratory apparatus—F. E. Becker and Co., London. Paints—Red Hand Composition, Ltd., London; Torbay Paint Co., Ltd., London. Quinine—Howards and Sons, Ltd., Ilford.